



## SEQUENCE LISTING

RECEIVED

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TECH CENTER 1600/2900

<110> Lindquist, Susan  
Queitsch, Christine  
Vierling, Elizabeth

<120> Transgenic Plants Containing Heat Shock Protein

<130> P01979US2

<140> US 09/812,350

<141> 2001-03-20

<150> US 60/190,769

<151> 2000-03-20

<150> US 60/198,116

<151> 2000-04-18

<160> 49

<170> PatentIn version 3.1

<210> 1

<211> 883

<212> PRT

<213> Synechococcus

<400> 1

Met Gly Ser Ser Leu Glu Leu Leu Thr Met Gln Pro Thr Asn Pro Asn  
1 5 10 15

Gln Phe Thr Glu Lys Ala Trp Glu Ala Ile Val Arg Thr Thr Asp Val  
20 25 30

Ala Lys Gln Ala Gln His Gln Gln Ile Glu Ser Glu His Leu Phe Leu  
35 40 45

Ala Leu Leu Gln Glu Pro Gly Leu Ala Leu Asn Ile Leu Lys Lys Ala  
50 55 60

Gly Leu Glu Ala Ala Gln Leu Gln Gln Phe Thr Glu Arg Phe Ile Ala  
65 70 75 80

Arg Gln Pro Lys Val Ser Gly Gly Asn Gln Ser Val Tyr Leu Gly Arg  
85 90 95

Ser Leu Asp Gln Leu Leu Asp Gln Ala Asp Gln Phe Arg Lys Asp Phe  
100 105 110

Gly Asp Glu Phe Ile Ser Val Glu His Leu Ile Leu Ser Phe Pro Arg  
115 120 125

Asp Ser Arg Phe Gly Arg Leu Leu Ser Gln Glu Phe Lys Val Asp Glu  
 130 135 140

Lys Gln Leu Arg Gln Ile Ile Gln Gln Ile Arg Gly Ser Gln Lys Val  
 145 150 155 160

Thr Asp Gln Asn Pro Glu Gly Lys Tyr Glu Ala Leu Glu Lys Tyr Gly  
 165 170 175

Arg Asp Leu Thr Glu Met Ala Arg Arg Gly Lys Leu Asp Pro Val Ile  
 180 185 190

Gly Arg Asp Asp Glu Ile Arg Arg Thr Ile Gln Ile Leu Ser Arg Arg  
 195 200 205

Thr Lys Asn Asn Pro Val Leu Ile Gly Glu Pro Gly Val Gly Lys Thr  
 210 215 220

Ala Ile Ala Glu Gly Leu Ala Gln Arg Ile Ile Asn Gly Asp Val Pro  
 225 230 235 240

Gln Ser Leu Lys Asp Arg Arg Leu Ile Ala Leu Asp Met Gly Ala Leu  
 245 250 255

Ile Ala Gly Ala Lys Phe Arg Gly Glu Phe Glu Glu Arg Leu Thr Ala  
 260 265 270

Val Leu Lys Glu Val Thr Asp Ser Glu Gly Ile Ile Ile Leu Phe Ile  
 275 280 285

Asp Glu Met His Thr Val Val Gly Ala Gly Ala Val Gln Gly Ser Met  
 290 295 300

Asp Ala Gly Asn Leu Leu Lys Thr Met Leu Ala Arg Gly Glu Leu Arg  
 305 310 315 320

Cys Ile Gly Ala Thr Thr Leu Gly Lys Tyr Arg Gln Tyr Ile Glu Lys  
 325 330 335

Asp Ala Ala Leu Glu Arg Arg Phe Gln Gln Val Phe Val Asp Gln Pro  
 340 345 350

Thr Val Glu Asp Thr Ile Ser Ile Leu Arg Gly Leu Lys Glu Arg Tyr  
 355 360 365

Glu Val His His Gly Val Arg Ile Ser Asp Asn Ala Leu Val Ala Ala  
 370 375 380

Ala Val Leu Ser Thr Arg Tyr Ile Ser Asp Arg Phe Leu Pro Asp Lys  
 385 390 395 400

Ala Ile Asp Leu Val Asp Glu Ser Ala Ala Arg Leu Lys Met Glu Ile  
 405 410 415

Thr Ser Lys Pro Glu Glu Leu Asp Glu Ile Asp Arg Lys Ile Leu Gln  
 420 425 430

Leu Glu Met Glu Arg Leu Ser Leu Gln Lys Glu Ser Asp Leu Ala Ser  
 435 440 445

Gln Glu Arg Leu Gln Arg Leu Glu Lys Glu Leu Ala Asp Leu Lys Glu  
 450 455 460

Glu Gln Arg Ser Leu Ser Ser Gln Trp Gln Ala Glu Lys Asp Val Ile  
 465 470 475 480

Thr Asp Ile Gln Ser Val Lys Glu Glu Ile Asp Gln Val Asn Leu Leu  
 485 490 495

Ile Gln Gln Ala Glu Arg Asp Tyr Asp Leu Asn Lys Ala Ala Glu Leu  
 500 505 510

Lys Tyr Gly Lys Leu Thr Glu Leu Gln Arg Lys Leu Asn Glu Met Glu  
 515 520 525

Gly Gly Leu Ala Thr Thr His Thr Ser Gly Lys Ser Leu Leu Arg Glu  
 530 535 540

Glu Val Thr Glu Val Asp Ile Ala Glu Ile Ile Ser Lys Trp Thr Gly  
 545 550 555 560

Ile Pro Val Ser Lys Leu Val Glu Ser Glu Met Gln Lys Leu Leu Asn  
 565 570 575

Leu Asp Glu Glu Leu His Gln Arg Val Ile Gly Gln Glu Glu Ala Val  
 580 585 590

Ser Ala Val Ala Asp Ala Ile Gln Arg Ser Arg Ala Gly Leu Ser Asp  
 595 600 605

Pro Lys Arg Pro Ile Ala Ser Phe Ile Phe Leu Gly Pro Thr Gly Val



Glu Asn Glu Arg Leu Val Phe Lys Ala Ile Ala Thr Pro Thr Ala Val  
 865 870 875 880

Pro Leu Ser

<210> 2  
 <211> 856  
 <212> PRT  
 <213> Helicobacter pylori

<400> 2

Met Asn Leu Phe Glu Lys Met Thr Asp Gln Leu His Glu Ala Leu Asp  
 1 5 10 15

Ser Ala Leu Ala Leu Ala Leu His His Lys Asn Ala Glu Val Thr Pro  
 20 25 30

Leu His Met Leu Phe Ala Met Leu Asn Asn Ser Gln Gly Ile Leu Ile  
 35 40 45

Gln Ala Leu Gln Lys Met Pro Val Asp Ile Glu Ala Leu Lys Leu Ser  
 50 55 60

Val Gln Ser Glu Leu Asn Lys Phe Ala Lys Val Ser Gln Ile Asn Lys  
 65 70 75 80

Gln Asn Ile Gln Leu Asn Gln Ala Leu Ile Gln Ser Leu Glu Asn Ala  
 85 90 95

Gln Gly Leu Met Ala Lys Thr Gly Asp Ser Phe Ile Ala Thr Asp Val  
 100 105 110

Tyr Leu Leu Ala Asn Met Ser Leu Phe Glu Ser Val Leu Lys Pro Tyr  
 115 120 125

Leu Asp Thr Lys Glu Leu Gln Lys Thr Leu Glu Ser Leu Arg Lys Gly  
 130 135 140

Ala Thr Ile Gln Gly Lys Asn Asp Asp Ser Asn Leu Glu Ser Leu Glu  
 145 150 155 160

Lys Phe Gly Ile Asp Leu Thr Gln Lys Ala Leu Glu Asn Lys Leu Asp  
 165 170 175

Pro Val Ile Gly Arg Asp Glu Glu Ile Ile Arg Met Met Gln Ile Leu  
 180 185 190

Ile Arg Lys Thr Lys Asn Asn Pro Ile Leu Leu Gly Glu Pro Gly Val  
 195 200 205

Gly Lys Thr Ala Val Val Glu Gly Leu Ala Gln Arg Ile Val Asn Lys  
 210 215 220

Glu Val Pro Lys Thr Leu Leu Asn Lys Arg Val Ile Ala Leu Asp Leu  
 225 230 235 240

Ser Leu Leu Val Ala Gly Ala Lys Tyr Arg Gly Glu Phe Glu Glu Arg  
 245 250 255

Leu Lys Lys Val Ile Glu Glu Val Lys Lys Ser Ala Asn Val Ile Leu  
 260 265 270

Phe Ile Asp Glu Ile His Thr Ile Val Gly Ala Gly Ala Ser Glu Gly  
 275 280 285

Gly Met Asp Ala Ala Asn Ile Leu Lys Pro Ala Leu Ala Arg Gly Glu  
 290 295 300

Leu His Thr Ile Gly Ala Thr Thr Leu Lys Glu Tyr Arg Lys Tyr Phe  
 305 310 315 320

Glu Lys Asp Met Ala Leu Gln Arg Arg Phe Gln Pro Ile Leu Leu Asn  
 325 330 335

Glu Pro Ser Ile Asn Glu Ala Leu Gln Ile Leu Arg Gly Leu Lys Glu  
 340 345 350

Thr Leu Glu Thr His His Asn Ile Thr Ile Asn Asp Ser Ala Leu Ile  
 355 360 365

Ala Ser Ala Lys Leu Ser Ser Arg Tyr Ile Thr Asp Arg Phe Leu Pro  
 370 375 380

Asp Lys Ala Ile Asp Leu Ile Asp Glu Gly Ala Ala Gln Leu Lys Met  
 385 390 395 400

Gln Met Glu Ser Glu Pro Ala Lys Leu Ser Ser Val Lys Arg Ser Ile  
 405 410 415

Gln Arg Leu Glu Met Glu Lys Gln Ala Leu Glu Met Glu Lys Lys Glu

420	425	430
Ser Asn His Lys Arg Met Gln Glu Ile Leu Lys Glu Leu Ser Asp Leu		
435	440	445
Lys Glu Glu Lys Ile Gln Leu Glu Ala Gln Phe Glu Asn Glu Lys Glu		
450	455	460
Ala Phe Lys Glu Ile Ser Arg Leu Lys Met Glu Met Glu Ser Leu Lys		
465	470	480
Lys Glu Ala Glu Arg Phe Lys Arg Asn Gly Asp Tyr Gln Gln Ala Gly		
485	490	495
Glu Ile Glu Tyr Ser Lys Ile Pro Glu Asn Lys Lys Lys Glu Glu Glu		
500	505	510
Leu Gln Arg Lys Trp Glu Ala Met Gln Gln Asn Gly Ala Leu Leu Gln		
515	520	525
Asn Ala Leu Thr Glu Asn Asn Ile Ala Glu Ile Val Ser Gln Trp Thr		
530	535	540
His Ile Pro Val Gln Lys Met Leu Gln Ser Glu Lys Asn Arg Val Leu		
545	550	560
Asn Ile Glu Ser Glu Leu Gln Lys Arg Val Val Gly Gln Glu Lys Ala		
565	570	575
Ile Lys Ala Ile Ala Lys Ala Ile Lys Arg Asn Lys Ala Gly Leu Ser		
580	585	590
Asp Ser Asn Lys Pro Ile Gly Ser Phe Leu Phe Leu Gly Pro Thr Gly		
595	600	605
Val Gly Lys Thr Glu Ser Ala Lys Ala Leu Ala Gln Phe Leu Phe Asp		
610	615	620
Ser Asp Lys Asn Leu Ile Arg Ile Asp Met Ser Glu Tyr Leu Glu Lys		
625	630	635
His Ala Ile Thr Arg Leu Ile Gly Pro Ala Pro Gly Tyr Val Gly Tyr		
645	650	655
Glu Glu Gly Gly Gln Leu Thr Glu Ala Val Arg Arg Lys Pro Tyr Ser		
660	665	670

Val Val Leu Leu Asp Glu Val Glu Lys Ala His Pro Asp Val Phe Asn  
675 680 685

Leu Leu Leu Gln Val Leu Asp Glu Gly His Leu Thr Asp Ser Lys Gly  
690 695 700

Val Arg Val Asp Phe Lys Asn Thr Ile Leu Ile Leu Thr Ser Asn Val  
705 710 715 720

Ala Ser Gly Ala Leu Leu Glu Glu Asn Leu Ser Glu Ala Asp Lys Gln  
725 730 735

Lys Ala Ile Lys Glu Ser Leu Arg Gln Phe Phe Lys Pro Glu Phe Leu  
740 745 750

Asn Arg Leu Asp Glu Ile Ile Ser Phe Asn Ala Leu Gly Ser His Ala  
755 760 765

Val Ile Asn Ile Val Gly Ile Leu Phe Glu Asn Ile Gln Lys Lys Ala  
770 775 780

Leu Glu Arg Gly Ile Asn Ile Thr Leu Asp Glu Glu Ala Lys Glu Leu  
785 790 795 800

Ile Ala Glu Ala Gly Phe Asp Arg Phe Tyr Gly Ala Arg Pro Leu Lys  
805 810 815

Arg Ala Leu Tyr Glu Met Val Glu Asp Lys Leu Ala Glu Leu Ile Leu  
820 825 830

Glu Asp Lys Ile Lys Glu Asn Gly Ser Val Ala Phe Val Val Glu Asn  
835 840 845

Asn Glu Ile Val Pro Lys Ile Lys  
850 855

<210> 3  
<211> 945  
<212> PRT  
<213> Arabidopsis thaliana

<400> 3

Met Glu Val Leu Ser Thr Ser Ser Pro Leu Thr Leu His Ser His Arg  
1 5 10 15



Leu Leu Ser Ala Ser Ser Ser Ser Ser His Val Thr Ser Ile Ala Ala  
                   20                                  25                                  30

Ser Ser Leu Ser Ser Phe Ala Ser Ser Tyr Leu Gly Ile Ser Leu Ser  
                   35                                  40                                  45

Asn Arg Thr Ile His Arg Phe Ser Thr Thr Pro Thr Asn Leu Arg Arg  
                   50                                  55                                  60

Phe Pro Gln Arg Lys Arg Lys Lys Phe Thr Pro Ile Ser Ala Val Phe  
 65                                  70                                  75                                  80

Glu Arg Phe Thr Glu Arg Ala Ile Arg Ala Ile Ile Phe Ser Gln Lys  
                                   85                                  90                                  95

Glu Ala Lys Ser Leu Gly Lys Asp Met Val Tyr Thr Gln His Leu Leu  
                                   100                                  105                                  110

Leu Gly Leu Ile Ala Glu Asp Arg Asp Pro Gln Gly Phe Leu Gly Ser  
                   115                                  120                                  125

Gly Ile Thr Ile Asp Lys Ala Arg Glu Ala Val Trp Ser Ile Trp Asp  
                   130                                  135                                  140

Glu Ala Asn Ser Asp Ser Lys Gln Glu Glu Ala Ser Ser Thr Ser Tyr  
 145                                  150                                  155                                  160

Ser Lys Ser Thr Asp Met Pro Phe Ser Ile Ser Thr Lys Arg Val Phe  
                                   165                                  170                                  175

Glu Ala Ala Val Glu Tyr Ser Arg Thr Met Asp Cys Gln Tyr Ile Ala  
                                   180                                  185                                  190

Pro Glu His Ile Ala Val Gly Leu Phe Thr Val Asp Asp Gly Ser Ala  
                   195                                  200                                  205

Gly Arg Val Leu Lys Arg Leu Gly Ala Asn Met Asn Leu Leu Thr Ala  
                   210                                  215                                  220

Ala Ala Leu Thr Arg Leu Lys Gly Glu Ile Ala Lys Asp Gly Arg Glu  
 225                                  230                                  235                                  240

Pro Ser Ser Ser Ser Lys Gly Ser Phe Glu Ser Pro Pro Ser Gly Arg  
                                   245                                  250                                  255

Ile Ala Gly Ser Gly Pro Gly Gly Lys Lys Ala Lys Asn Val Leu Glu

260	265	270
Gln Phe Cys Val Asp Leu Thr Ala Arg Ala Ser Glu Gly Leu Ile Asp 275 280 285		
Pro Val Ile Gly Arg Glu Lys Glu Val Gln Arg Val Ile Gln Ile Leu 290 295 300		
Cys Arg Arg Thr Lys Asn Asn Pro Ile Leu Leu Gly Glu Ala Gly Val 305 310 315 320		
Gly Lys Thr Ala Ile Ala Glu Gly Leu Ala Ile Ser Ile Ala Glu Ala 325 330 335		
Ser Ala Pro Gly Phe Leu Leu Thr Lys Arg Ile Met Ser Leu Asp Ile 340 345 350		
Gly Leu Leu Met Ala Gly Ala Lys Glu Arg Gly Glu Leu Glu Ala Arg 355 360 365		
Val Thr Ala Leu Ile Ser Glu Val Lys Lys Ser Gly Lys Val Ile Leu 370 375 380		
Phe Ile Asp Glu Val His Thr Leu Ile Gly Ser Gly Thr Val Gly Arg 385 390 395 400		
Gly Asn Lys Gly Ser Gly Leu Asp Ile Ala Asn Leu Leu Lys Pro Ser 405 410 415		
Leu Gly Arg Gly Glu Leu Gln Cys Ile Ala Ser Thr Thr Leu Asp Glu 420 425 430		
Phe Arg Ser Gln Phe Glu Lys Asp Lys Ala Leu Ala Arg Arg Phe Gln 435 440 445		
Pro Val Leu Ile Asn Glu Pro Ser Glu Glu Asp Ala Val Lys Ile Leu 450 455 460		
Leu Gly Leu Arg Glu Lys Tyr Glu Ala His His Asn Cys Lys Tyr Thr 465 470 475 480		
Met Glu Ala Ile Asp Ala Ala Val Tyr Leu Ser Ser Arg Tyr Ile Ala 485 490 495		
Asp Arg Phe Leu Pro Asp Lys Ala Ile Asp Leu Ile Asp Glu Ala Gly 500 505 510		

Ser Arg Ala Arg Ile Glu Ala Phe Arg Lys Lys Lys Glu Asp Ala Ile  
 515 520 525

Cys Ile Leu Ser Lys Pro Pro Asn Asp Tyr Trp Gln Glu Ile Lys Thr  
 530 535 540

Val Gln Ala Met His Glu Val Val Leu Ser Ser Arg Gln Lys Gln Asp  
 545 550 555 560

Asp Gly Asp Ala Ile Ser Asp Glu Ser Gly Glu Leu Val Glu Glu Ser  
 565 570 575

Ser Leu Pro Pro Ala Ala Gly Asp Asp Glu Pro Ile Leu Val Gly Pro  
 580 585 590

Asp Asp Ile Ala Ala Val Ala Ser Val Trp Ser Gly Ile Pro Val Gln  
 595 600 605

Gln Ile Thr Ala Asp Glu Arg Met Leu Leu Met Ser Leu Glu Asp Gln  
 610 615 620

Leu Arg Gly Arg Val Val Gly Gln Asp Glu Ala Val Ala Ala Ile Ser  
 625 630 635 640

Arg Ala Val Lys Arg Ser Arg Val Gly Leu Lys Asp Pro Asp Arg Pro  
 645 650 655

Ile Ala Ala Met Leu Phe Cys Gly Pro Thr Gly Val Gly Lys Thr Glu  
 660 665 670

Leu Thr Lys Ala Leu Ala Ala Asn Tyr Phe Gly Ser Glu Glu Ser Met  
 675 680 685

Leu Arg Leu Asp Met Ser Glu Tyr Met Glu Arg His Thr Val Ser Lys  
 690 695 700

Leu Ile Gly Ser Pro Pro Gly Tyr Val Gly Phe Glu Glu Gly Gly Met  
 705 710 715 720

Leu Thr Glu Ala Ile Arg Arg Arg Pro Phe Thr Val Val Leu Phe Asp  
 725 730 735

Glu Ile Glu Lys Ala His Pro Asp Ile Phe Asn Ile Leu Leu Gln Leu  
 740 745 750

Phe Glu Asp Gly His Leu Thr Asp Ser Gln Gly Arg Arg Val Ser Phe  
755 760 765

Lys Asn Ala Leu Ile Ile Met Thr Ser Asn Val Gly Ser Leu Ala Ile  
770 775 780

Ala Lys Gly Arg His Gly Ser Ile Gly Phe Ile Leu Asp Asp Asp Glu  
785 790 795 800

Glu Ala Ala Ser Tyr Thr Gly Met Lys Ala Leu Val Val Glu Glu Leu  
805 810 815

Lys Asn Tyr Phe Arg Pro Glu Leu Leu Asn Arg Ile Asp Glu Ile Val  
820 825 830

Ile Phe Arg Gln Leu Glu Lys Ala Gln Met Met Glu Ile Leu Asn Leu  
835 840 845

Met Leu Gln Asp Leu Lys Ser Arg Leu Val Ala Leu Gly Val Gly Leu  
850 855 860

Glu Val Ser Glu Pro Val Lys Glu Leu Ile Cys Lys Gln Gly Tyr Asp  
865 870 875 880

Pro Ala Tyr Gly Ala Arg Pro Leu Arg Arg Thr Val Thr Glu Ile Val  
885 890 895

Glu Asp Pro Leu Ser Glu Ala Phe Leu Ala Gly Ser Phe Lys Pro Gly  
900 905 910

Asp Thr Ala Phe Val Val Leu Asp Asp Thr Gly Asn Pro Ser Val Arg  
915 920 925

Thr Lys Pro Asp Ser Ser Thr Ile Arg Val Thr Asp Lys Thr Ser Ile  
930 935 940

Ala  
945

<210> 4  
<211> 594  
<212> PRT  
<213> Escherichia coli

<400> 4

Met Arg Leu Asp Arg Leu Thr Asn Lys Phe Gln Leu Ala Leu Ala Asp

1	5	10	15
Ala Gln Ser Leu Ala Leu Gly His Asp Asn Gln Phe Ile Glu Pro Leu	20	25	30
His Leu Met Ser Ala Leu Leu Asn Gln Glu Gly Gly Ser Val Ser Pro	35	40	45
Leu Leu Thr Ser Ala Gly Ile Asn Ala Gly Gln Leu Arg Thr Asp Ile	50	55	60
Asn Gln Ala Leu Asn Arg Leu Pro Gln Val Glu Gly Thr Gly Gly Asp	65	70	75
Val Gln Pro Ser Gln Asp Leu Val Arg Val Leu Asn Leu Cys Asp Lys	85	90	95
Leu Ala Gln Lys Arg Gly Asp Asn Phe Ile Ser Ser Glu Leu Phe Val	100	105	110
Leu Ala Ala Leu Glu Ser Arg Gly Thr Leu Ala Asp Ile Leu Lys Ala	115	120	125
Ala Gly Ala Thr Thr Ala Asn Ile Thr Gln Ala Ile Glu Gln Met Arg	130	135	140
Gly Gly Glu Ser Val Asn Asp Gln Gly Ala Glu Asp Gln Arg Gln Ala	145	150	155
Leu Lys Lys Tyr Thr Ile Asp Leu Thr Glu Arg Ala Glu Gln Gly Lys	165	170	175
Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg Thr Ile Gln	180	185	190
Val Leu Gln Arg Arg Thr Lys Asn Asn Pro Val Leu Ile Gly Glu Pro	195	200	205
Gly Val Gly Lys Thr Ala Ile Val Glu Gly Leu Ala Gln Arg Ile Ile	210	215	220
Asn Gly Glu Val Pro Glu Gly Leu Lys Gly Arg Arg Val Leu Ala Leu	225	230	235
Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg Gly Glu Phe Glu	245	250	255

Glu Arg Leu Lys Gly Val Leu Asn Asp Leu Ala Lys Gln Glu Gly Asn  
 260 265 270

Val Ile Leu Phe Ile Asp Glu Leu His Thr Met Val Gly Ala Gly Lys  
 275 280 285

Ala Asp Gly Ala Met Asp Ala Gly Asn Met Leu Lys Pro Ala Leu Ala  
 290 295 300

Arg Gly Glu Leu His Cys Val Gly Ala Thr Thr Leu Asp Glu Tyr Arg  
 305 310 315 320

Gln Tyr Ile Glu Lys Asp Ala Ala Leu Glu Arg Arg Phe Gln Lys Val  
 325 330 335

Phe Val Ala Glu Pro Ser Val Glu Asp Thr Ile Ala Ile Leu Arg Gly  
 340 345 350

Leu Lys Glu Arg Tyr Glu Leu His His His Val Gln Ile Thr Asp Pro  
 355 360 365

Ala Ile Val Ala Ala Ala Thr Leu Ser His Arg Tyr Ile Ala Asp Arg  
 370 375 380

Gln Leu Pro Asp Lys Ala Ile Asp Leu Ile Asp Glu Ala Ala Ser Ser  
 385 390 395 400

Ile Arg Met Gln Ile Asp Ser Lys Pro Glu Glu Leu Asp Arg Leu Asp  
 405 410 415

Arg Arg Ile Ile Gln Leu Lys Leu Glu Gln Gln Ala Leu Met Lys Glu  
 420 425 430

Ser Asp Glu Ala Ser Lys Lys Arg Leu Asp Met Leu Asn Glu Glu Leu  
 435 440 445

Ser Asp Lys Glu Arg Gln Tyr Ser Glu Leu Glu Glu Glu Trp Lys Ala  
 450 455 460

Glu Lys Ala Ser Leu Ser Gly Thr Gln Thr Ile Lys Ala Glu Leu Glu  
 465 470 475 480

Gln Ala Lys Ile Ala Ile Glu Gln Ala Arg Arg Val Gly Asp Leu Ala  
 485 490 495

Arg Met Ser Glu Leu Gln Tyr Gly Lys Ile Pro Glu Leu Glu Lys Gln  
500 505 510

Leu Glu Ala Ala Thr Gln Leu Glu Gly Lys Thr Met Arg Leu Leu Arg  
515 520 525

Asn Lys Val Thr Asp Ala Glu Ile Ala Glu Val Leu Ala Arg Trp Thr  
530 535 540

Gly Ile Pro Val Ser Arg Met Met Glu Ser Glu Arg Glu Lys Leu Leu  
545 550 555 560

Arg Met Glu Gln Glu Leu His His Arg Val Ile Gly Gln Asn Glu Ala  
565 570 575

Val Asp Ala Val Ser Asn Ala Ile Arg Arg Ser Arg Ala Gly Leu Ala  
580 585 590

Asp Pro

<210> 5  
<211> 177  
<212> PRT  
<213> Bacillus subtilis

<400> 5

Gly Val Gly Lys Thr Ala Ile Ala Glu Gly Leu Ala Gln Gln Ile Ile  
1 5 10 15

Asn Asn Glu Val Pro Glu Ile Leu Arg Asp Lys Arg Val Met Thr Leu  
20 25 30

Asp Met Gly Thr Val Val Ala Gly Thr Lys Tyr Arg Gly Glu Phe Glu  
35 40 45

Asp Arg Leu Lys Lys Val Met Asp Glu Ile Arg Gln Ala Gly Asn Ile  
50 55 60

Ile Leu Phe Ile Asp Glu Leu His Thr Leu Ile Gly Ala Gly Gly Ala  
65 70 75 80

Glu Gly Ala Ile Asp Ala Ser Asn Ile Leu Lys Pro Ser Leu Ala Arg  
85 90 95

Gly Glu Leu Gln Cys Ile Gly Ala Thr Thr Leu Asp Glu Tyr Arg Lys

100	105	110
Tyr Ile Glu Lys Asp Ala Ala Leu Glu Arg Arg Phe Gln Pro Ile Gln		
115	120	125
Val Asp Gln Pro Ser Val Asp Glu Ser Ile Gln Ile Leu Gln Gly Leu		
130	135	140
Arg Asp Arg Tyr Glu Ala His His Arg Val Ser Ile Thr Asp Asp Ala		
145	150	155
Ile Glu Ala Ala Val Lys Leu Ser Asp Arg Tyr Ile Ser Asp Arg Phe		
165	170	175

Leu

<210> 6  
 <211> 852  
 <212> PRT  
 <213> Corynebacterium glutamicum

<400> 6

Met Ser Ser Phe Asn Pro Thr Thr Lys Thr Asn Glu Ala Met Gln Ala		
1	5	10
Ala Leu Gln Gln Ala Ser Ser Ala Gly Asn Pro Asp Ile Arg Pro Ala		
20	25	30
His Leu Leu Ala Ala Ile Leu Glu Gln Thr Asp Gly Val Ala Ala Pro		
35	40	45
Val Leu Met Ala Thr Gly Val Asp Pro Lys Glu Ile Leu Ala Glu Ala		
50	55	60
Lys Lys Leu Val Ala Ser Tyr Pro Lys Ala Ser Gly Ala Asn Met Ala		
65	70	75
Asn Pro Asn Phe Asn Arg Asp Ala Leu Asn Ala Phe Thr Ala Ala Gln		
85	90	95
Glu Leu Ala Gly Glu Leu Gly Asp Glu Tyr Val Ser Thr Glu Val Leu		
100	105	110
Leu Ala Gly Ile Ala Arg Gly Lys Ser Asp Ala Ala Asp Leu Leu Thr		
115	120	125



Asn Lys Gly Ala Thr Tyr Asp Ala Ile Lys Glu Ala Phe Pro Ser Val  
 130 135 140

Arg Gly Ser Gln Arg Val Thr Thr Gln Asp Pro Glu Gly Gln Phe Gln  
 145 150 155 160

Ala Leu Glu Lys Tyr Ser Thr Asp Leu Thr Lys Leu Ala Arg Glu Gly  
 165 170 175

Lys Ile Asp Pro Val Ile Gly Arg Asp Gln Glu Ile Arg Arg Val Val  
 180 185 190

Gln Val Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile Gly Glu  
 195 200 205

Pro Gly Val Gly Lys Thr Ala Ile Val Glu Gly Leu Ala Arg Arg Ile  
 210 215 220

Val Ala Gly Asp Val Pro Glu Ser Leu Lys Gly Lys Thr Leu Ile Ser  
 225 230 235 240

Leu Asp Leu Gly Ser Met Val Ala Gly Ala Lys Tyr Arg Gly Glu Phe  
 245 250 255

Glu Glu Arg Leu Lys Ala Val Leu Asp Glu Ile Lys Gly Ala Asn Gly  
 260 265 270

Glu Val Val Thr Phe Ile Asp Glu Leu His Thr Ile Val Gly Ala Gly  
 275 280 285

Ala Ser Gly Glu Ser Ala Met Asp Ala Gly Asn Met Ile Lys Pro Leu  
 290 295 300

Leu Ala Arg Gly Glu Leu Arg Leu Val Gly Ala Thr Thr Leu Asn Glu  
 305 310 315 320

Tyr Arg Lys Tyr Ile Glu Lys Asp Ala Ala Leu Glu Arg Arg Phe Gln  
 325 330 335

Gln Val Tyr Val Gly Glu Pro Thr Val Glu Asp Ala Ile Gly Ile Leu  
 340 345 350

Arg Gly Leu Lys Glu Arg Tyr Glu Val His His Gly Val Arg Ile Gln  
 355 360 365

Asp Ser Ala Leu Val Ala Ala Ala Glu Leu Ser Asn Arg Tyr Ile Thr  
 370 375 380

Ser Arg Phe Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu Ala Ala  
 385 390 395 400

Ser Arg Leu Arg Met Glu Ile Asp Ser Ser Pro Gln Glu Ile Asp Glu  
 405 410 415

Leu Glu Arg Ile Val Arg Arg Leu Glu Ile Glu Glu Met Ala Leu Ser  
 420 425 430

Lys Glu Ser Asp Ala Ala Ser Lys Glu Arg Leu Glu Lys Leu Arg Ser  
 435 440 445

Glu Leu Ala Asp Glu Arg Glu Lys Leu Ser Glu Leu Lys Ala Arg Trp  
 450 455 460

Gln Asn Glu Lys Thr Ala Ile Asp Asp Val Arg Glu Met Lys Glu Glu  
 465 470 475 480

Leu Glu Ala Leu Arg Ser Glu Ser Asp Ile Ala Glu Arg Asp Gly Asn  
 485 490 495

Tyr Gly Arg Val Ala Glu Leu Arg Tyr Gly Arg Ile Pro Glu Leu Glu  
 500 505 510

Lys Gln Ile Glu Asp Ala Glu Ser Lys Val Glu Val Asn Glu Asn Ala  
 515 520 525

Met Leu Thr Glu Glu Val Thr Pro Asp Thr Ile Ala Asp Val Val Ser  
 530 535 540

Ala Trp Thr Gly Ile Pro Ala Gly Lys Met Met Gln Gly Glu Thr Glu  
 545 550 555 560

Lys Leu Leu Asn Met Glu Arg Val Leu Gly Asn Arg Val Val Gly Gln  
 565 570 575

Leu Glu Ala Val Thr Ala Val Ser Asp Ala Val Arg Arg Ser Arg Ala  
 580 585 590

Gly Val Ala Asp Pro Asn Arg Pro Thr Gly Ser Phe Leu Phe Leu Gly  
 595 600 605

Pro Thr Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Val Ala Glu Phe

610		615		620
Leu Phe Asp Asp Asp Arg Ala Met Ile Arg Ile Asp Met Ser Glu Tyr				
625		630		635 640
Gly Glu Lys His Ser Val Ala Arg Leu Val Gly Ala Pro Pro Gly Tyr				
	645		650	655
Val Gly Tyr Asp Gln Gly Gly Gln Leu Thr Glu Ala Val Arg Arg Arg				
	660		665	670
Pro Tyr Thr Val Val Leu Phe Asp Glu Val Glu Lys Ala His Pro Asp				
	675		680	685
Val Phe Asp Ile Leu Leu Gln Val Leu Asp Glu Gly Arg Leu Thr Asp				
	690		695	700
Gly Gln Gly Arg Thr Val Asp Phe Arg Asn Thr Ile Leu Ile Leu Thr				
705		710		715 720
Ser Asn Leu Gly Ala Gly Gly Thr Arg Glu Gln Met Met Asp Ala Val				
	725		730	735
Lys Met Ala Phe Lys Pro Glu Phe Val Asn Arg Leu Asp Asp Val Val				
	740		745	750
Ile Phe Asp Arg Leu Ser Pro Glu Gln Leu Thr Ser Ile Val Asp Ile				
	755		760	765
Gln Ile Lys Gln Leu Thr Asp Arg Leu Ala Gly Arg Arg Leu Asn Leu				
	770		775	780
Arg Val Ser Asp Ser Ala Lys Ala Trp Leu Ala Glu Arg Gly Tyr Asp				
785		790		795 800
Pro Ala Tyr Gly Ala Arg Pro Leu Arg Arg Leu Ile Gln Gln Ala Ile				
	805		810	815
Gly Asp Thr Leu Ala Lys Glu Leu Leu Ala Gly Asn Val Arg Asp Gly				
	820		825	830
Asp Gly Val Leu Val Asp Val Ala Asp Gly Gly Gln Lys Leu Asp Val				
	835		840	845
Ser Arg Ala Val				
850				



Cys Leu Ile Gly Glu Pro Gly Ile Gly Lys Thr Ala Ile Ile Glu Gly  
 210 215 220  
 Val Ala Gln Arg Ile Ile Asp Asp Asp Val Pro Thr Ile Leu Gln Gly  
 225 230 235 240  
 Ala Lys Leu Phe Ser Leu Asp Leu Ala Ala Leu Thr Ala Gly Ala Lys  
 245 250 255  
 Tyr Lys Gly Asp Phe Glu Glu Arg Phe Lys Gly Val Leu Lys Glu Ile  
 260 265 270  
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Ile Ala Lys Glu Leu Pro Pro Asn Ser Thr Leu Arg Val Ser Leu Pro  
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cccgggtgctg gcaagactgc gatcgcggag ggaattgcgc agcggattgt acgtggggac	780
gtgccggaca ccttgttgaa tacacgtttg ttttcccttg acctcggcgc ccttatcgct	840
ggaagctcgc ttcggggcga gtttgaggag cgtctcaaga gtgtgctaaa cgaagtgaag	900
gagagttcca atggagttat tttgtttatt gatgagattc acctcgtcct cggggcaggg	960

aagtccggtg gctcgatgga tgccgcaa	at ttgctgaaac caatgctcgc acgtggagaa	1020
cttcgtacta ttggagcgac tacactggag	gagtatcgca catatgtcga gaaggatgcc	1080
gcatttgaga ggcgcttcat gcctgtgtat	gttacagagc ccagtgttga agagtgcac	1140
agcatccttc gtggcctaaa ggaccggtat	gaggcacacc atgggtgttca aattactgac	1200
aatgcggttg ttgttgagc acagctggcg	aaccgttaca tcacaaaccg cttcatgcct	1260
gacaaggcca tcgacctcat tgatgaagcg	tgtgccaatg tgaggggtgca gctttcatcg	1320
cggccggagg cgattgacat ccttgagcgc	aagaaacgcc agctggagat tgaggcgaag	1380
gctctcgaac gtgacaagga agctgcttca	cgggagcgac taaaacttgt gaaggcggat	1440
atacagcgcg ttgaggagga gctgcaacca	cttgtcagca agtataatga tgagcgtcaa	1500
cgtattgatg agcttcagga gatgcagtcg	cgtcttgatg agaagaagaa actggagcgc	1560
gctgtgcgtg atggcaaaat ggacttggct	gcagacctcc agtacaatgt catccccctg	1620
attcaggacc gcattcggtc gttgaaggag	gacattgaaa gacagaaggc cacattgggtg	1680
caggaaaagg ttactgaagg tgacgtcgcc	gctgtggttg cccgctggac cggcatccct	1740
gtggttaa	at tgagtcagac ggatcgggag cggctattga	1800
acctttccat	gcacatccac	1860
cgacgcgtga agggacaaga tgaggcgggt	gagcggggtg ccgatgcgat tattcgtgct	1920
cgtgccccgc	tgtcgcccc caactcccc actgcctcgt	1980
ttctattcct	tggaaccacg	2040
gggtgttgaa agacagaact gggtaaagcc	gttgctgccg agttgtttga cgacgaaaag	2100
catatggtac gcattgacat gagcgagtat	atggagcaac attcgggtgtc acggttgatt	2160
ggtgcaccac ctggttacat tggccatgac	gagggcggac agttgacgga accggtgcgg	2220
cggcgccctc acgccgttgt gttgtttgat	gaggtggaaa aggcacatcc aaatgtgtac	2280
aatgtgctac tgcaagtact ggatgatggc	cgttgactg actcgcgtgg acggacgggtg	2340
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cctgaggaga cgaatgaatc ttatgaggta	ctgcgtgaga atgtgttggc tgccgtgcgg	2460
tcttacttcc gacctgagct catcaatcgc	ttggatgata ttgttgtgtt ccgaagactt	2520
cgtacagaag acctgcgggg tgtcgttgac	aatcttatcg ctggcggttaa cgagcgtctc	2580
aaatccagtg ggttttctgt tttgctggat	gatggtgtga aggatttcat tttggagcat	2640
ggccacgatg ccaatatggg cgctcgcccc	ctacgccgtt ggatcgaaaa gaacatcgtc	2700
actgaaatcg gccgcatgct catcgcaag	gagctgccac caaacagcac tttacgagtt	2760
tcacttctcg aagggtgggaa caaactaacg	tttgggtgtga aacggggggt taccagtgac	
gaatgggaat aaaggcgcta gacaaacaga	aaggatatat ctatatcgat atatgtgttt	



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2800

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<213> Arabidopsis thaliana

<400> 17

Met Asn Pro Glu Lys Phe Thr His Lys Thr Asn Glu Thr Ile Ala Thr  
1 5 10 15

Ala His Glu Leu Ala Val Asn Ala Gly His Ala Gln Phe Thr Pro Leu  
20 25 30

His Leu Ala Gly Ala Leu Ile Ser Asp Pro Thr Gly Ile Phe Pro Gln  
35 40 45

Ala Ile Ser Ser Ala Gly Gly Glu Asn Ala Ala Gln Ser Ala Glu Arg  
50 55 60

Val Ile Asn Gln Ala Leu Lys Lys Leu Pro Ser Gln Ser Pro Pro Pro  
65 70 75 80

Asp Asp Ile Pro Ala Ser Ser Ser Leu Ile Lys Val Ile Arg Arg Ala  
85 90 95

Gln Ala Ala Gln Lys Ser Arg Gly Asp Thr His Leu Ala Val Asp Gln  
100 105 110

Leu Ile Met Gly Leu Leu Glu Asp Ser Gln Ile Arg Asp Leu Leu Asn  
115 120 125

Glu Val Gly Val Ala Thr Ala Arg Val Lys Ser Glu Val Glu Lys Leu  
130 135 140

Arg Gly Lys Glu Gly Lys Lys Val Glu Ser Ala Ser Gly Asp Thr Asn  
145 150 155 160

Phe Gln Ala Leu Lys Thr Tyr Gly Arg Asp Leu Val Glu Gln Ala Gly  
165 170 175

Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg Val Val  
180 185 190

Arg Ile Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile Gly Glu  
195 200 205

Pro Gly Val Gly Lys Thr Ala Val Val Glu Gly Leu Ala Gln Arg Ile  
 210 215 220

Val Lys Gly Asp Val Pro Asn Ser Leu Thr Asp Val Arg Leu Ile Ser  
 225 230 235 240

Leu Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg Gly Glu Phe  
 245 250 255

Glu Glu Arg Leu Lys Ser Val Leu Lys Glu Val Glu Asp Ala Glu Gly  
 260 265 270

Lys Val Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu Gly Ala Gly  
 275 280 285

Lys Thr Glu Gly Ser Met Asp Ala Ala Asn Leu Phe Lys Pro Met Leu  
 290 295 300

Ala Arg Gly Gln Leu Arg Cys Ile Gly Ala Thr Thr Leu Glu Glu Tyr  
 305 310 315 320

Arg Lys Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe Gln Gln  
 325 330 335

Val Tyr Val Ala Glu Pro Ser Val Pro Asp Thr Ile Ser Ile Leu Arg  
 340 345 350

Gly Leu Lys Glu Lys Tyr Glu Gly His His Gly Val Arg Ile Gln Asp  
 355 360 365

Arg Ala Leu Ile Asn Ala Ala Gln Leu Ser Ala Arg Tyr Ile Thr Gly  
 370 375 380

Arg His Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu Ala Cys Ala  
 385 390 395 400

Asn Val Arg Val Gln Leu Asp Ser Gln Pro Glu Glu Ile Asp Asn Leu  
 405 410 415

Glu Arg Lys Arg Met Gln Leu Glu Ile Glu Leu His Ala Leu Glu Arg  
 420 425 430

Glu Lys Asp Lys Ala Ser Lys Ala Arg Leu Ile Glu Val Arg Lys Glu  
 435 440 445

Leu Asp Asp Leu Arg Asp Lys Leu Gln Pro Leu Thr Met Lys Tyr Arg  
 450 455 460

Lys Glu Lys Glu Arg Ile Asp Glu Ile Arg Arg Leu Lys Gln Lys Arg  
 465 470 475 480

Glu Glu Leu Met Phe Ser Leu Gln Glu Ala Glu Arg Arg Tyr Asp Leu  
 485 490 495

Ala Arg Ala Ala Asp Leu Arg Tyr Gly Ala Ile Gln Glu Val Glu Ser  
 500 505 510

Ala Ile Ala Gln Leu Glu Gly Thr Ser Ser Glu Glu Asn Val Met Leu  
 515 520 525

Thr Glu Asn Val Gly Pro Glu His Ile Ala Glu Val Val Ser Arg Trp  
 530 535 540

Thr Gly Ile Pro Val Thr Arg Leu Gly Gln Asn Glu Lys Glu Arg Leu  
 545 550 555 560

Ile Gly Leu Ala Asp Arg Leu His Lys Arg Val Val Gly Gln Asn Gln  
 565 570 575

Ala Val Asn Ala Val Ser Glu Ala Ile Leu Arg Ser Arg Ala Gly Leu  
 580 585 590

Gly Arg Ala Gln Gln Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro Thr  
 595 600 605

Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Gln Leu Phe  
 610 615 620

Asp Asp Glu Asn Leu Leu Val Arg Ile Asp Met Ser Glu Tyr Met Glu  
 625 630 635 640

Gln His Ser Val Ser Arg Leu Ile Gly Ala Pro Pro Gly Tyr Val Gly  
 645 650 655

His Glu Glu Gly Gly Gln Leu Thr Glu Ala Val Arg Arg Arg Pro Tyr  
 660 665 670

Cys Val Ile Leu Phe Asp Glu Val Glu Lys Ala His Val Ala Val Phe  
 675 680 685

Asn Thr Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Gly Gln

690	695	700
Gly Arg Thr Val Asp Phe Arg Asn Ser Val Ile Ile Met Thr Ser Asn 705 710 715 720		
Leu Gly Ala Glu His Leu Leu Ala Gly Leu Thr Gly Lys Val Thr Met 725 730 735		
Glu Val Ala Arg Asp Cys Val Met Arg Glu Val Arg Lys His Phe Arg 740 745 750		
Pro Glu Leu Leu Asn Arg Leu Asp Glu Ile Val Val Phe Asp Pro Leu 755 760 765		
Ser His Asp Gln Leu Arg Lys Val Ala Arg Leu Gln Met Lys Asp Val 770 775 780		
Ala Val Arg Leu Ala Glu Arg Gly Val Ala Leu Ala Val Thr Asp Ala 785 790 795 800		
Ala Leu Asp Tyr Ile Leu Ala Glu Ser Tyr Asp Pro Val Tyr Gly Ala 805 810 815		
Arg Pro Ile Arg Arg Trp Met Glu Lys Lys Val Val Thr Glu Leu Ser 820 825 830		
Lys Met Val Val Arg Glu Glu Ile Asp Glu Asn Ser Thr Val Tyr Ile 835 840 845		
Asp Ala Gly Ala Gly Asp Leu Val Tyr Arg Val Glu Ser Gly Gly Leu 850 855 860		
Val Asp Ala Ser Thr Gly Lys Lys Ser Asp Val Leu Ile His Ile Ala 865 870 875 880		
Asn Gly Pro Lys Arg Ser Asp Ala Ala Gln Ala Val Lys Lys Met Arg 885 890 895		
Ile Glu Glu Ile Glu Asp Asp Asp Asn Glu Glu Met Ile Glu Asp 900 905 910		

<210> 18  
 <211> 918  
 <212> PRT  
 <213> Triticum aestivum  
  
 <400> 18

Met Asn Pro Asp Asn Phe Thr His Lys Thr Asn Glu Ala Leu Val Ala  
1                   5                   10                   15  
Ala His Glu Ala Ala Ser Glu Ala Gly His Ala Gln Ile Thr Pro Leu  
          20                   25                   30  
His Leu Ala Ala Ala Leu Ala Ala Asp Lys Ser Gly Ile Leu Arg Gln  
          35                   40                   45  
Ala Val Ala Gly Ala Ser Gly Gly Asn Ala Ser Ala Gly Asp Ser Phe  
          50                   55                   60  
Glu Arg Val Leu Ser Gly Ala Leu Lys Lys Leu Pro Ser Gln Ser Pro  
65                   70                   75                   80  
Pro Pro Asp Ser Val Pro Ala Ser Thr Ala Leu Ile Lys Ala Ile Arg  
          85                   90                   95  
Arg Ala Gln Ser Ala Gln Lys Lys Arg Gly Asp Ser His Leu Ala Val  
          100                   105                   110  
Asp Gln Leu Leu Met Gly Leu Leu Glu Asp Ala Gln Ile Ala Asp Cys  
          115                   120                   125  
Leu Lys Glu Ala Gly Val Ser Ala Ser Arg Val Arg Ala Glu Leu Glu  
          130                   135                   140  
Lys Leu Arg Gly Gly Asp Asn Ser Arg Lys Val Glu Ser Ala Ser Gly  
145                   150                   155                   160  
Asp Thr Asn Phe Gln Ala Leu Lys Thr Tyr Gly Arg Asp Leu Val Glu  
          165                   170                   175  
Val Ala Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg  
          180                   185                   190  
Arg Val Val Arg Ile Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu  
          195                   200                   205  
Ile Gly Glu Pro Gly Val Gly Lys Thr Ala Val Val Glu Gly Leu Ala  
          210                   215                   220  
Gln Arg Val Val Arg Gly Asp Val Pro Ser Asn Leu Leu Asp Val Arg  
225                   230                   235                   240

Leu Val Ala Leu Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg  
                           245                          250                          255

Gly Glu Phe Glu Glu Arg Leu Lys Ala Val Leu Lys Glu Val Glu Glu  
                           260                          265                          270

Ala Glu Gly Lys Val Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu  
                           275                          280                          285

Gly Ala Gly Arg Thr Glu Gly Ser Met Asp Ala Ala Asn Leu Phe Lys  
                           290                          295                          300

Pro Met Leu Ala Arg Gly Gln Leu Arg Cys Ile Gly Ala Thr Thr Leu  
 305                          310                          315                          320

Glu Glu Tyr Arg Lys Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg  
                           325                          330                          335

Phe Gln Gln Val Tyr Val Ala Glu Pro Ser Val Ala Asp Thr Ile Ser  
                           340                          345                          350

Ile Leu Arg Gly Leu Lys Glu Lys Tyr Glu Gly His His Gly Val Arg  
                           355                          360                          365

Ile Gln Asp Arg Ala Ile Val Val Ala Ala Gln Leu Ser Ala Arg Tyr  
                           370                          375                          380

Ile Met Gly Arg His Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu  
 385                          390                          395                          400

Ala Cys Ala Asn Val Arg Val Gln Leu Asp Ser Gln Pro Glu Glu Ile  
                           405                          410                          415

Asp Asn Leu Glu Arg Lys Arg Ile Gln Leu Glu Val Glu Leu His Ala  
                           420                          425                          430

Leu Glu Lys Glu Lys Asp Lys Ala Ser Lys Ala Arg Leu Val Glu Val  
                           435                          440                          445

Arg Lys Glu Leu Asp Asp Leu Arg Asp Lys Leu Gln Pro Leu Thr Met  
                           450                          455                          460

Lys Tyr Arg Lys Glu Lys Glu Arg Ile Asp Glu Ile Arg Lys Leu Lys  
 465                          470                          475                          480

Gln Arg Arg Glu Glu Leu Gln Phe Thr Leu Gln Glu Ala Glu Arg Arg



Ser Met Lys Val Ala Arg Asp Leu Val Met Gln Glu Val Arg Arg His  
           740                          745                          750

Phe Arg Pro Glu Leu Leu Asn Arg Leu Asp Glu Ile Val Val Phe Asp  
           755                          760                          765

Pro Leu Ser His Glu Gln Leu Arg Lys Val Ala Arg Leu Gln Met Lys  
           770                          775                          780

Asp Val Ala Val Arg Leu Ala Glu Arg Gly Val Ala Leu Ala Val Thr  
 785                          790                          795                          800

Asp Ala Ala Leu Asp Val Ile Leu Ser Leu Ala Tyr Asp Pro Val Tyr  
                           805                          810                          815

Gly Ala Arg Pro Ile Arg Arg Trp Ile Glu Lys Arg Val Val Thr Gln  
                           820                          825                          830

Leu Ser Lys Met Leu Ile Gln Glu Glu Ile Asp Glu Asn Cys Thr Val  
           835                          840                          845

Tyr Ile Asp Ala Ala Asn Lys Asp Glu Leu Ala Tyr Arg Val Asp Arg  
           850                          855                          860

Ser Gly Gly Leu Val Asn Ala Glu Thr Gly Gln Arg Ser Asp Ile Leu  
 865                          870                          875                          880

Ile Gln Val Pro Asn Gly Ala Leu Gly Gly Gly Lys Gly Gly Glu Ala  
                           885                          890                          895

Ala Lys Ala Val Lys Lys Met Arg Val Met Glu Asp Gly Asp Glu Asp  
           900                          905                          910

Gly Met Asp Glu Asp Val  
           915

<210> 19  
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 <212> PRT  
 <213> Triticum aestivum

<400> 19

Met Asn Pro Asp Asn Phe Thr His Lys Thr Asn Glu Ala Leu Val Ala  
 1                          5                          10                          15



Ala His Glu Ala Ala Ser Glu Ala Gly His Ala Gln Ile Thr Pro Leu  
                   20                                  25                                  30

His Leu Ala Ala Ala Leu Ala Ala Asp Lys Ser Gly Ile Leu Arg Gln  
                   35                                  40                                  45

Ala Val Ala Gly Ala Ser Gly Gly Asn Ala Ser Ala Gly Asp Ser Phe  
                   50                                  55                                  60

Glu Arg Val Leu Ala Gly Ala Leu Arg Lys Leu Pro Ser Gln Ser Pro  
   65                                  70                                  75                                  80

Pro Pro Asp Ser Val Pro Ala Ser Thr Ala Leu Ile Lys Ala Ile Arg  
                                   85                                  90                                  95

Arg Ala Gln Ser Ala Gln Lys Lys Arg Gly Asp Ser His Leu Ala Val  
                                   100                                  105                                  110

Asp Gln Leu Leu Met Gly Leu Leu Glu Asp Ala Gln Ile Ala Asp Cys  
                   115                                  120                                  125

Leu Lys Glu Ala Gly Val Ser Ala Ser Arg Val Arg Ala Glu Leu Asp  
                   130                                  135                                  140

Lys Leu Arg Gly Gly Asp Asn Ser Arg Lys Val Glu Ser Ala Phe Gly  
   145                                  150                                  155                                  160

Asp Thr Thr Phe Gln Ala Leu Lys Thr Tyr Gly Arg Asp Leu Val Glu  
                                   165                                  170                                  175

Val Ala Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg  
                                   180                                  185                                  190

Arg Val Val Arg Ile Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu  
                   195                                  200                                  205

Ile Gly Glu Pro Gly Val Gly Lys Thr Ala Val Val Glu Gly Leu Ala  
                   210                                  215                                  220

Gln Arg Val Val Arg Gly Asp Val Pro Ser Asn Leu Leu Asp Val Arg  
   225                                  230                                  235                                  240

Leu Val Ala Leu Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg  
                                   245                                  250                                  255

Gly Glu Phe Glu Glu Arg Leu Lys Ala Val Leu Lys Glu Val Glu Glu

260	265	270
Ala Asp Gly Lys Val Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu		
275	280	285
Gly Ala Gly Arg Thr Glu Gly Ser Met Asp Ala Ala Asn Leu Phe Lys		
290	295	300
Pro Met Leu Ala Arg Gly Gln Leu Arg Cys Ile Gly Ala Thr Thr Leu		
305	310	315
Glu Glu Tyr Arg Lys Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg		
325	330	335
Phe Gln Gln Val Tyr Val Ala Glu Pro Ser Val Ala Asp Thr Ile Ser		
340	345	350
Ile Leu Arg Gly Leu Lys Glu Lys Tyr Glu Gly His His Gly Val Arg		
355	360	365
Ile Gln Asp Arg Ala Ile Val Val Ala Ala Gln Leu Ser Ala Arg Tyr		
370	375	380
Ile Met Gly Arg His Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu		
385	390	395
Ala Cys Ala Asn Val Arg Val Gln Leu Asp Ser Gln Pro Glu Glu Ile		
405	410	415
Asp Asn Leu Glu Arg Lys Arg Ile Gln Leu Glu Val Glu Leu His Ala		
420	425	430
Leu Glu Lys Glu Lys Asp Lys Ala Ser Lys Ala Arg Leu Val Glu Val		
435	440	445
Arg Lys Glu Leu Asp Asp Leu Arg Asp Lys Leu Gln Pro Leu Thr Met		
450	455	460
Lys Tyr Arg Lys Glu Lys Glu Arg Ile Asp Glu Ile Arg Lys Leu Lys		
465	470	475
Gln Arg Arg Glu Glu Leu Gln Phe Thr Leu Gln Glu Ala Glu Arg Arg		
485	490	495
Met Asp Leu Ala Arg Val Ala Asp Leu Lys Tyr Gly Ala Leu Gln Glu		
500	505	510

Ile Asp Ala Ala Ile Ala Lys Leu Glu Gly Glu Thr Gly Glu Asn Leu  
 515 520 525

Met Leu Thr Glu Thr Val Gly Pro Glu Gln Ile Ala Glu Val Val Ser  
 530 535 540

Arg Trp Thr Gly Ile Pro Val Thr Arg Leu Gly Gln Asn Asp Lys Glu  
 545 550 555 560

Arg Leu Val Gly Met Ala Asp Arg Leu His Thr Arg Val Val Gly Gln  
 565 570 575

Thr Glu Ala Val Asn Ala Val Ala Glu Ala Val Leu Arg Ser Arg Ala  
 580 585 590

Gly Leu Gly Arg Pro Gln Gln Pro Thr Gly Ser Phe Leu Phe Leu Gly  
 595 600 605

Pro Thr Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Gln  
 610 615 620

Leu Phe Asp Asp Glu Asn Leu Leu Val Arg Ile Asp Met Ser Glu Tyr  
 625 630 635 640

Met Glu Gln His Ser Val Ala Arg Leu Ile Gly Ala Pro Pro Gly Tyr  
 645 650 655

Val Gly His Glu Glu Gly Gly Gln Leu Thr Glu Gln Val Arg Arg Arg  
 660 665 670

Pro Tyr Ser Val Ile Leu Phe Asp Glu Val Glu Lys Ala His Val Ala  
 675 680 685

Val Phe Asn Thr Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp  
 690 695 700

Gly Gln Gly Arg Thr Val Asp Phe Arg Asn Thr Val Ile Ile Met Thr  
 705 710 715 720

Ser Asn Leu Gly Ala Glu His Leu Leu Ala Gly Met Val Gly Lys Asn  
 725 730 735

Ser Met Lys Val Ala Arg Asp Leu Val Met Gln Glu Val Arg Arg His  
 740 745 750

Phe Arg Pro Glu Leu Leu Asn Arg Leu Asp Glu Met Val Ile Phe Asp  
755 760 765

Pro Leu Ser His Glu Gln Leu Arg Lys Val Ala Arg Leu Gln Met Lys  
770 775 780

Asp Val Ala Val Arg Leu Ala Glu Arg Gly Val Ala Leu Ala Val Thr  
785 790 795 800

Asp Ala Ala Leu Asp Val Ile Leu Ser Leu Ala Tyr Asp Pro Val Tyr  
805 810 815

Gly Ala Arg Pro Ile Arg Arg Trp Ile Glu Lys Arg Val Val Thr Gln  
820 825 830

Leu Ser Lys Met Leu Ile Gln Glu Glu Ile Asp Glu Asn Cys Thr Val  
835 840 845

Tyr Ile Asp Ala Ala Asp Lys Asp Glu Leu Ala Tyr Arg Val Asp Arg  
850 855 860

Ser Gly Gly Leu Val Asn Ala Glu Thr Gly Gln Arg Ser Asp Ile Leu  
865 870 875 880

Ile Gln Val Pro Asn Gly Ala Leu Gly Gly Gly Gly Gly Gly Glu Ala  
885 890 895

Ala Lys Ala Val Lys Lys Met Arg Val Met Glu Asp Gly Asp Glu Asp  
900 905 910

Gly Met Asp Glu Asp Val  
915

<210> 20

<211> 911

<212> PRT

<213> Glycine max

<400> 20

Met Asn Pro Glu Lys Phe Thr His Lys Thr Asn Glu Ala Leu Ala Ser  
1 5 10 15

Ala His Glu Leu Ala Met Ser Ser Gly His Ala Gln Leu Thr Pro Ile  
20 25 30

His Leu Ala His Ala Leu Ile Ser Asp Pro Asn Gly Ile Phe Val Leu

35	40	45
Ala Ile Asn Ser Ala Gly Gly Gly Glu Glu Ser Ala Arg Ala Val Glu 50 55 60		
Arg Val Leu Asn Gln Ala Leu Lys Lys Leu Pro Cys Gln Ser Pro Pro 65 70 75 80		
Pro Asp Glu Val Pro Ala Ser Thr Asn Leu Val Arg Ala Ile Arg Arg 85 90 95		
Ala Gln Ala Ala Gln Lys Ser Arg Gly Asp Thr Arg Leu Ala Val Asp 100 105 110		
Gln Leu Ile Leu Gly Ile Leu Glu Asp Ser Gln Ile Gly Asp Leu Leu 115 120 125		
Lys Glu Ala Gly Val Ala Val Ala Lys Val Glu Ser Glu Val Asp Lys 130 135 140		
Leu Arg Gly Lys Glu Gly Lys Lys Val Glu Ser Ala Ser Gly Asp Thr 145 150 155 160		
Asn Phe Gln Ala Leu Lys Thr Tyr Gly Arg Asp Leu Val Glu Gln Ala 165 170 175		
Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg Val 180 185 190		
Val Arg Ile Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Val Gly 195 200 205		
Glu Pro Gly Val Gly Lys Thr Ala Val Val Glu Gly Leu Ala Gln Arg 210 215 220		
Ile Val Arg Gly Asp Val Pro Ser Asn Leu Ala Asp Val Arg Leu Ile 225 230 235 240		
Ala Leu Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg Gly Glu 245 250 255		
Phe Glu Glu Arg Leu Lys Ala Val Leu Lys Glu Val Glu Glu Ala Glu 260 265 270		
Gly Lys Val Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu Gly Ala 275 280 285		

Gly Arg Thr Glu Gly Ser Met Asp Ala Ala Asn Leu Phe Lys Pro Met  
290 295 300

Leu Ala Arg Gly Gln Leu Arg Cys Ile Gly Ala Thr Thr Leu Glu Glu  
305 310 315 320

Tyr Arg Lys Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe Gln  
325 330 335

Gln Val Phe Val Ala Glu Pro Ser Val Val Asp Thr Ile Ser Ile Leu  
340 345 350

Arg Gly Leu Lys Glu Arg Tyr Glu Gly His His Gly Val Arg Ile Gln  
355 360 365

Asp Arg Ala Leu Val Met Ala Ala Gln Leu Ser Asn Arg Tyr Ile Thr  
370 375 380

Gly Arg His Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu Ala Cys  
385 390 395 400

Ala Asn Val Arg Val Gln Leu Asp Ser Gln Pro Glu Glu Ile Asp Asn  
405 410 415

Leu Glu Arg Lys Arg Met Gln Leu Glu Val Glu Leu His Ala Leu Glu  
420 425 430

Lys Glu Lys Asp Lys Ala Ser Lys Ala Arg Leu Val Glu Val Arg Lys  
435 440 445

Glu Leu Asp Asp Leu Arg Asp Lys Leu Gln Pro Leu Met Met Lys Tyr  
450 455 460

Arg Lys Glu Lys Glu Arg Val Asp Glu Ile Arg Arg Leu Lys Lys Lys  
465 470 475 480

Arg Glu Glu Leu Leu Phe Ala Leu Gln Glu Ala Glu Arg Arg Tyr Asp  
485 490 495

Leu Ala Arg Ala Ala Asp Leu Arg Tyr Gly Ala Ile Gln Glu Val Glu  
500 505 510

Thr Ala Ile Gln Gln Leu Glu Gly Ser Thr Glu Glu Asn Leu Met Leu  
515 520 525

Thr Glu Thr Val Gly Pro Glu Gln Ile Ala Glu Val Val Ser Arg Trp  
530 535 540

Thr Gly Ile Pro Val Thr Arg Leu Gly Gln Asn Glu Lys Glu Arg Leu  
545 550 555 560

Ile Gly Leu Gly Asp Arg Leu His Ser Arg Val Val Gly Gln Asp Gln  
565 570 575

Ala Val Asn Ala Val Ala Glu Ala Val Leu Arg Ser Arg Ala Gly Leu  
580 585 590

Gly Arg Pro Gln Gln Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro Thr  
595 600 605

Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Gln Leu Phe  
610 615 620

Asp Asn Glu Asn Gln Leu Val Arg Ile Asp Met Ser Glu Tyr Met Glu  
625 630 635 640

Gln His Ser Val Ser Arg Leu Ile Gly Ala Pro Pro Gly Tyr Val Gly  
645 650 655

His Glu Glu Gly Gly Gln Leu Thr Glu Ala Val Arg Arg Arg Pro Tyr  
660 665 670

Ser Val Val Leu Phe Asp Glu Val Glu Lys Ala His Thr Ser Val Phe  
675 680 685

Asn Thr Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Gly Gln  
690 695 700

Gly Arg Thr Val Asp Phe Arg Asn Thr Val Ile Ile Met Thr Ser Asn  
705 710 715 720

Leu Gly Ala Glu His Leu Leu Ser Gly Leu Ser Gly Lys Cys Thr Met  
725 730 735

Gln Val Ala Arg Asp Arg Val Met Gln Glu Val Arg Arg Gln Phe Arg  
740 745 750

Pro Glu Leu Leu Asn Arg Leu Asp Glu Ile Val Val Phe Asp Pro Leu  
755 760 765

Ser His Asp Gln Leu Arg Lys Val Ala Arg Leu Gln Met Lys Asp Val  
 770 775 780

Ala Ser Arg Leu Ala Glu Lys Gly Ile Ala Leu Ala Val Thr Asp Ala  
 785 790 795 800

Ala Leu Asp Tyr Ile Leu Ser Glu Ser Tyr Asp Pro Val Tyr Gly Ala  
 805 810 815

Arg Pro Ile Arg Arg Trp Leu Glu Lys Lys Val Val Thr Glu Leu Ser  
 820 825 830

Arg Met Leu Val Arg Glu Glu Ile Asp Glu Asn Ser Thr Val Tyr Ile  
 835 840 845

Asp Ala Gly Pro Asn Gly Gly Glu Leu Val Tyr Arg Val Glu Lys Asn  
 850 855 860

Gly Gly Val Val Asn Pro Thr Thr Gly Gln Lys Ser Asp Ile Leu Ile  
 865 870 875 880

Gln Ile Pro Asn Gly His Ala Pro Lys Thr Asp Ala Val Gln Ala Val  
 885 890 895

Lys Lys Met Lys Ile Glu Glu Ile Asp Asp Asp Glu Met Glu Glu  
 900 905 910

<210> 21  
 <211> 912  
 <212> PRT  
 <213> Zea mays

<400> 21

Met Asn Pro Asp Asn Phe Thr His Lys Thr Asn Glu Ala Ile Val Gly  
 1 5 10 15

Ala His Glu Ile Ala Val Glu Ala Gly His Ala Gln Leu Thr Pro Leu  
 20 25 30

His Leu Ala Ala Val Leu Ala Ala Asp Lys Gly Gly Ile Leu Arg Gln  
 35 40 45

Ala Ile Thr Gly Ala Ser Gly Gly Asp Gly Ala Ala Gly Asp Ser Phe  
 50 55 60

Glu Arg Val Leu Asn Asn Ser Leu Lys Lys Leu Pro Ser Gln Ser Pro  
 65 70 75 80



Pro Pro Asp Ser Val Pro Ala Ser Thr Ala Leu Ile Lys Val Ile Arg  
 85 90 95

Arg Ala Gln Ser Ala Gln Lys Lys Arg Gly Asp Ser His Leu Ala Val  
 100 105 110

Asp Gln Leu Leu Leu Gly Leu Leu Glu Asp Ser Gln Ile Ser Asp Cys  
 115 120 125

Leu Lys Glu Ala Gly Val Ser Ala Ala Arg Val Arg Ala Glu Leu Glu  
 130 135 140

Lys Leu Arg Gly Gly Glu Gly Arg Arg Val Glu Ser Ala Ser Gly Asp  
 145 150 155 160

Thr Asn Phe Gln Ala Leu Lys Thr Tyr Gly Arg Asp Leu Val Glu Gln  
 165 170 175

Ala Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg  
 180 185 190

Val Val Arg Ile Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile  
 195 200 205

Gly Glu Pro Gly Val Gly Lys Thr Ala Val Val Glu Gly Leu Ala Gln  
 210 215 220

Arg Ile Val Arg Gly Asp Val Pro Ser Asn Leu Leu Asp Val Arg Leu  
 225 230 235 240

Ile Ala Leu Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg Gly  
 245 250 255

Glu Phe Glu Glu Arg Leu Lys Ala Val Leu Lys Glu Val Glu Glu Ala  
 260 265 270

Glu Gly Lys Val Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu Gly  
 275 280 285

Ala Gly Arg Thr Glu Gly Ser Met Asp Ala Ala Asn Leu Phe Lys Pro  
 290 295 300

Met Leu Ala Arg Gly Gln Leu Arg Cys Ile Gly Ala Thr Thr Leu Glu  
 305 310 315 320

Glu Tyr Arg Lys Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe  
                           325                          330                          335

Gln Gln Val Phe Val Ala Glu Pro Ser Val Pro Asp Thr Val Ser Ile  
                           340                          345                          350

Leu Arg Gly Leu Lys Glu Lys Tyr Glu Gly His His Gly Val Arg Ile  
                           355                          360                          365

Gln Asp Arg Ala Leu Val Val Ala Ala Gln Leu Ser Ala Arg Tyr Ile  
                           370                          375                          380

Met Gly Arg His Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu Ala  
 385                          390                          395                          400

Cys Ala Asn Val Arg Val Gln Leu Asp Ser Gln Pro Glu Glu Ile Asp  
                           405                          410                          415

Asn Leu Glu Arg Lys Arg Ile Gln Leu Glu Val Glu Leu His Ala Leu  
                           420                          425                          430

Glu Lys Glu Lys Asp Lys Ala Ser Lys Ala Arg Leu Ile Glu Val Arg  
                           435                          440                          445

Lys Glu Leu Asp Asp Leu Arg Asp Lys Leu Gln Pro Leu Thr Met Lys  
                           450                          455                          460

Tyr Arg Lys Glu Lys Glu Arg Ile Asp Glu Ile Arg Lys Leu Lys Gln  
 465                          470                          475                          480

Arg Arg Glu Glu Leu Gln Phe Thr Leu Gln Glu Ala Glu Arg Arg Met  
                           485                          490                          495

Asp Leu Ala Arg Val Ala Asp Leu Lys Tyr Gly Ala Leu Gln Glu Ile  
                           500                          505                          510

Asp Ala Ala Ile Ser Lys Leu Glu Ser Glu Thr Gly Glu Asn Leu Met  
                           515                          520                          525

Leu Thr Glu Thr Val Gly Pro Glu Gln Ile Ala Glu Val Val Ser Arg  
                           530                          535                          540

Trp Thr Gly Ile Pro Val Thr Arg Leu Gly Gln Asn Asp Lys Glu Arg  
 545                          550                          555                          560

Leu Val Gly Leu Ala Asp Arg Leu His Gln Arg Val Val Gly Gln Thr  
 565 570 575  
 Glu Ala Val Ser Ala Val Ala Glu Ala Val Leu Arg Ser Arg Ala Gly  
 580 585 590  
 Leu Gly Arg Pro Gln Gln Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro  
 595 600 605  
 Thr Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Gln Leu  
 610 615 620  
 Phe Asp Asp Glu Asn Leu Leu Val Arg Ile Asp Met Ser Glu Tyr Met  
 625 630 635 640  
 Glu Gln His Ser Val Ala Arg Leu Ile Gly Ala Pro Pro Gly Tyr Val  
 645 650 655  
 Gly His Glu Glu Gly Gly Gln Leu Thr Glu Gln Val Arg Arg Arg Pro  
 660 665 670  
 Tyr Ser Val Ile Leu Phe Asp Glu Val Glu Lys Ala His Val Ala Val  
 675 680 685  
 Phe Asn Thr Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Gly  
 690 695 700  
 Gln Gly Arg Thr Val Asp Phe Arg Asn Thr Val Ile Ile Met Thr Ser  
 705 710 715 720  
 Asn Leu Gly Ala Glu His Leu Leu Ala Gly Met Val Gly Lys Asn Ser  
 725 730 735  
 Met Lys Val Ala Arg Asp Leu Val Met Gln Glu Val Arg Arg His Phe  
 740 745 750  
 Arg Pro Glu Leu Leu Asn Arg Leu Asp Glu Ile Val Ile Phe Asp Pro  
 755 760 765  
 Leu Ser His Glu Gln Leu Arg Lys Val Ala Arg Leu Gln Met Lys Asp  
 770 775 780  
 Val Ala Val Arg Leu Ala Glu Arg Gly Ile Ala Leu Ala Val Thr Asp  
 785 790 795 800  
 Ala Ala Leu Asp Ile Ile Leu Ser Leu Ser Tyr Asp Pro Val Tyr Gly

	805		810		815
Ala Arg Pro Ile Arg Arg Trp Ile Glu Lys Arg Val Val Thr Gln Leu	820		825		830
Ser Lys Met Leu Ile Gln Glu Glu Ile Asp Glu Asn Cys Thr Val Tyr	835		840		845
Ile Asp Ala Ala Pro Gly Lys Asp Glu Leu Val Tyr Arg Val Asp Arg	850		855		860
Ser Gly Gly Leu Val Asn Ala Glu Thr Gly Met Lys Ser Asp Ile Leu	865		870		875
Ile Gln Val Pro Asn Ser Ser Thr Arg Ser Asp Ala Ala Gln Ala Val	885		890		895
Lys Lys Met Arg Ile Met Glu Glu Asp Glu Asp Gly Met Asp Glu Glu	900		905		910
<210> 22					
<211> 913					
<212> PRT					
<213> Triticum aestivum					
<400> 22					
Met Asn Pro Asp Lys Phe Thr His Lys Thr Asn Glu Ala Leu Ala Ala	1	5	10		15
Ala His Glu Met Ala Ser Glu Ala Gly His Ala Gln Leu Thr Pro Leu	20		25		30
His Leu Ala Ala Ala Leu Ala Ala Asp Arg Ser Gly Ile Leu Arg Gln	35		40		45
Ala Ile Ala His Ala Ser Gly Gly Asn Asp Ala Ala Ala Glu Ser Phe	50		55		60
Glu Arg Val Ala Ser Ala Ala Leu Lys Arg Leu Pro Ser Gln Ser Pro	65		70		75
Pro Pro Asp Thr Val Pro Ala Ser Thr Ser Leu Val Lys Ala Val Arg	85		90		95
Arg Ala Gln Ser Ala Gln Lys Ser Arg Gly Asp Ser His Leu Ala Val	100		105		110

Asp Gln Leu Leu Met Gly Leu Leu Glu Asp Pro Gln Ile Ser Asp Ala  
 115 120 125

Leu Lys Glu Ala Gly Ile Ser Ala Ala Arg Val Lys Ala Glu Val Glu  
 130 135 140

Lys Leu Arg Gly Gly Asp Asn Arg Arg Val Glu Ser Ala Ser Gly Asp  
 145 150 155 160

Thr Asn Phe Gln Ala Leu Lys Thr Tyr Gly Arg Asp Leu Val Glu Val  
 165 170 175

Ala Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg  
 180 185 190

Val Val Arg Ile Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile  
 195 200 205

Gly Glu Pro Gly Val Gly Lys Thr Ala Val Val Glu Gly Leu Ala Gln  
 210 215 220

Arg Val Val Arg Gly Asp Val Pro Ser Asn Leu Leu Asp Val Arg Leu  
 225 230 235 240

Val Ala Leu Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg Gly  
 245 250 255

Glu Phe Glu Glu Arg Leu Lys Ala Val Leu Lys Glu Val Glu Glu Ala  
 260 265 270

Glu Gly Lys Val Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu Gly  
 275 280 285

Ala Gly Arg Thr Glu Gly Ser Met Asp Ala Ala Asn Leu Phe Lys Pro  
 290 295 300

Met Leu Ala Arg Gly Gln Leu Arg Cys Ile Gly Ala Thr Thr Leu Glu  
 305 310 315 320

Glu Tyr Arg Lys Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe  
 325 330 335

Gln Gln Val Phe Val Ala Glu Pro Ser Val Pro Asp Thr Val Ser Ile  
 340 345 350

Leu Arg Gly Leu Lys Glu Lys Tyr Glu Gly His His Gly Val Arg Ile  
 355 360 365

Gln Asp Arg Ala Leu Val Ile Ala Ala Gln Leu Ser Ser Arg Tyr Ile  
 370 375 380

Met Gly Arg His Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu Ala  
 385 390 395 400

Cys Ala Asn Val Arg Val Gln Leu Asp Ser Gln Pro Glu Glu Ile Asp  
 405 410 415

Asn Leu Glu Arg Lys Arg Ile Gln Leu Glu Val Glu Leu His Ala Leu  
 420 425 430

Glu Lys Glu Lys Asp Lys Ala Ser Lys Ala Arg Leu Val Asp Val Arg  
 435 440 445

Lys Glu Leu Asp Asp Leu Arg Asp Lys Leu Gln Pro Leu Gln Met Lys  
 450 455 460

Tyr Arg Lys Glu Lys Glu Arg Ile Asp Glu Ile Arg Ser Leu Lys Gln  
 465 470 475 480

Arg Arg Glu Glu Leu Gln Phe Thr Leu Gln Glu Ala Glu Arg Arg Met  
 485 490 495

Asp Leu Ala Arg Val Ala Asp Leu Arg Tyr Gly Ala Leu Gln Glu Val  
 500 505 510

Asp Ala Ala Ile Ala Lys Leu Glu Gly Glu Thr Gly Glu Asn Leu Met  
 515 520 525

Leu Thr Glu Thr Val Gly Pro Asp Gln Ile Ala Glu Val Val Ser Arg  
 530 535 540

Trp Thr Gly Ile Pro Val Thr Arg Leu Gly Gln Asn Glu Lys Ala Arg  
 545 550 555 560

Leu Ile Gly Leu Ala Asp Arg Leu His Gln Arg Val Val Gly Gln Tyr  
 565 570 575

Glu Ala Val Asn Ala Val Gly Glu Ala Val Leu Arg Ser Arg Ala Gly  
 580 585 590

Leu Gly Arg Pro Gln Gln Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro

595	600	605
Thr Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Gln Leu 610 615 620		
Phe Asp Asp Glu Asn Leu Leu Val Arg Ile Asp Met Ser Glu Tyr Met 625 630 635 640		
Glu Gln His Ser Val Ala Arg Leu Ile Gly Ala Pro Pro Gly Tyr Val 645 650 655		
Gly His Glu Glu Gly Gly Gln Leu Thr Glu Gln Val Arg Arg Arg Pro 660 665 670		
Tyr Ser Val Ile Leu Phe Asp Glu Val Glu Lys Ala His Val Ala Val 675 680 685		
Phe Asn Thr Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Gly 690 695 700		
Gln Gly Arg Thr Val Asp Phe Arg Asn Thr Val Ile Ile Met Thr Ser 705 710 715 720		
Asn Leu Gly Ala Glu His Leu Leu Ala Gly Met Val Gly Asn Ser Met 725 730 735		
Lys Val Ala Arg Asp Leu Val Met Gln Glu Val Arg Arg His Phe Arg 740 745 750		
Pro Glu Leu Leu Asn Arg Leu Asp Glu Ile Val Ile Phe Asp Pro Leu 755 760 765		
Ser His Glu Gln Leu Arg Lys Val Ala Arg Leu Gln Met Lys Asp Val 770 775 780		
Ala Val Arg Leu Ala Glu Arg Gly Val Ala Leu Ala Val Thr Asp Ala 785 790 795 800		
Ala Leu Asp Val Ile Leu Ser Leu Ser Tyr Asp Pro Val Tyr Gly Ala 805 810 815		
Arg Pro Ile Arg Arg Trp Ile Glu Lys Arg Ile Val Thr Glu Leu Ser 820 825 830		
Lys Met Leu Ile Arg Glu Glu Ile Asp Glu Asn Ser Thr Val Tyr Ile 835 840 845		

Asp Ala Ala Pro Ser Lys Asp Glu Leu Thr Tyr Gly Val Asp Lys His  
850 855 860

Gly Gly Leu Val Asn Ala Arg Thr Gly His Lys Ser Asp Ile Leu Ile  
865 870 875 880

Gln Val Pro Ser Gly Ala Val Gly Gly Asp Ala Ala His Ala Val Lys  
885 890 895

Lys Met Lys Ile Met Gln Asp Ser Gly Glu Val Asp Asp Met Glu Glu  
900 905 910

Glu

<210> 23  
<211> 909  
<212> PRT  
<213> Nicotiana tabacum

<400> 23

Met Asn Pro Glu Lys Phe Thr His Lys Thr Asn Glu Ala Leu Ala Gly  
1 5 10 15

Ala Leu Glu Leu Ala Leu Ser Ala Gly His Ala Gln Phe Thr Pro Leu  
20 25 30

His Met Ala Val Ala Leu Ile Ser Asp His Asn Gly Ile Phe Arg Gln  
35 40 45

Ala Ile Val Asn Ala Gly Gly Asn Glu Glu Val Ala Asn Ser Val Glu  
50 55 60

Arg Val Leu Asn Gln Ala Met Lys Lys Leu Pro Ser Gln Thr Pro Ala  
65 70 75 80

Pro Asp Glu Ile Pro Pro Ser Thr Ser Leu Ile Lys Val Leu Arg Arg  
85 90 95

Ala Gln Ser Ser Gln Lys Ser Arg Gly Asp Ser His Leu Ala Val Asp  
100 105 110

Gln Leu Ile Leu Gly Leu Leu Glu Asp Ser Gln Ile Gly Asp Leu Leu  
115 120 125



Lys Glu Ala Gly Val Ser Ala Ser Arg Val Lys Ser Glu Val Glu Lys  
 130 135 140

Leu Arg Gly Lys Glu Gly Arg Lys Val Glu Ser Ala Ser Gly Asp Thr  
 145 150 155 160

Thr Phe Gln Ala Leu Asn Thr Tyr Gly Arg Asp Leu Val Glu Gln Ala  
 165 170 175

Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg Val  
 180 185 190

Val Arg Ile Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile Gly  
 195 200 205

Glu Pro Gly Val Gly Lys Thr Ala Val Val Glu Gly Leu Ala Gln Arg  
 210 215 220

Ile Val Arg Gly Asp Val Pro Ser Asn Leu Ala Asp Val Arg Leu Ile  
 225 230 235 240

Ala Leu Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg Gly Glu  
 245 250 255

Phe Glu Glu Arg Leu Lys Ala Val Leu Lys Glu Val Glu Glu Ala Glu  
 260 265 270

Gly Lys Val Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu Gly Ala  
 275 280 285

Gly Arg Thr Glu Gly Ser Met Asp Ala Ala Asn Leu Phe Lys Pro Met  
 290 295 300

Leu Ala Arg Gly Gln Leu Arg Cys Ile Gly Ala Thr Thr Leu Glu Glu  
 305 310 315 320

Tyr Arg Lys Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe Gln  
 325 330 335

Gln Val Tyr Val Ala Glu Pro Ser Val Ala Asp Thr Ile Ser Ile Leu  
 340 345 350

Arg Gly Leu Lys Glu Arg Tyr Glu Gly His His Gly Val Lys Ile Gln  
 355 360 365

Asp Arg Ala Leu Val Val Ala Ala Gln Leu Ser Ser Arg Tyr Ile Thr

370	375	380
Gly Arg His Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu Ala Cys		
385	390	395 400
Ala Asn Val Arg Val Gln Leu Asp Ser Gln Pro Glu Glu Ile Asp Asn		
	405	410 415
Leu Glu Arg Lys Arg Ile Gln Leu Glu Val Glu Leu His Ala Leu Glu		
	420	425 430
Lys Glu Lys Asp Lys Ala Ser Lys Ala Arg Leu Ile Glu Val Arg Lys		
	435	440 445
Glu Leu Asp Asp Leu Arg Asp Lys Leu Gln Pro Leu Met Met Arg Tyr		
	450	455 460
Lys Lys Glu Lys Glu Arg Ile Asp Glu Leu Arg Arg Leu Lys Gln Lys		
465	470	475 480
Arg Asp Glu Leu Ile Tyr Ala Leu Gln Glu Ala Glu Arg Arg Tyr Asp		
	485	490 495
Leu Ala Arg Ala Ala Asp Leu Arg Tyr Gly Ala Ile Gln Glu Val Glu		
	500	505 510
Thr Ala Ile Ala Asn Leu Glu Ser Thr Ser Ala Glu Ser Thr Met Leu		
	515	520 525
Thr Glu Thr Val Gly Pro Asp Gln Ile Ala Glu Val Val Ser Arg Trp		
	530	535 540
Thr Gly Ile Pro Val Ser Arg Leu Gly Gln Asn Glu Lys Glu Lys Leu		
545	550	555 560
Ile Gly Leu Gly Asp Arg Leu His Gln Arg Val Val Gly Gln Asp His		
	565	570 575
Ala Val Arg Ala Val Ala Glu Ala Val Leu Arg Ser Arg Ala Gly Leu		
	580	585 590
Gly Arg Pro Gln Gln Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro Thr		
	595	600 605
Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Gln Leu Phe		
	610	615 620

Asp Asp Asp Lys Leu Met Ile Arg Ile Asp Met Ser Glu Tyr Met Glu  
625 630 635 640

Gln His Ser Val Ser Arg Leu Ile Gly Ala Pro Pro Gly Tyr Val Gly  
645 650 655

His Asp Glu Gly Gly Gln Leu Thr Glu Ala Val Arg Arg Arg Pro Tyr  
660 665 670

Ser Val Val Leu Phe Asp Glu Val Glu Lys Ala His Pro Ala Val Phe  
675 680 685

Asn Thr Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Gly Gln  
690 695 700

Gly Arg Thr Val Asp Phe Thr Asn Ser Val Ile Ile Met Thr Ser Asn  
705 710 715 720

Leu Gly Ala Glu Tyr Leu Leu Ser Gly Leu Met Gly Lys Cys Thr Met  
725 730 735

Glu Thr Ala Arg Glu Met Val Met Gln Glu Val Arg Lys Gln Phe Lys  
740 745 750

Pro Glu Leu Leu Asn Arg Leu Asp Glu Ile Val Val Phe Asp Pro Leu  
755 760 765

Ser His Lys Gln Leu Arg Gln Val Cys Arg Tyr Gln Met Lys Asp Val  
770 775 780

Ala Leu Arg Leu Ala Glu Arg Gly Ile Ala Leu Gly Val Thr Glu Ala  
785 790 795 800

Ala Pro Asp Val Ile Leu Thr Glu Ser Tyr Asp Pro Val Tyr Gly Ala  
805 810 815

Arg Pro Ile Arg Arg Trp Leu Glu Arg Lys Val Val Thr Glu Leu Ser  
820 825 830

Lys Met Leu Val Lys Glu Glu Ile Asp Glu Asn Ser Thr Val Tyr Ile  
835 840 845

Asp Ala Gly Val Ser Gly Lys Asp Leu Thr Tyr Arg Val Glu Lys Asn  
850 855 860

Gly Gly Leu Val Asn Ala Ala Thr Gly Gln Lys Ser Asp Ile Leu Ile  
 865 870 875 880

Gln Leu Pro Asn Gly Pro Arg Ser Asp Ala Val Gln Ala Val Lys Lys  
 885 890 895

Met Arg Ile Glu Glu Ile Glu Asp Asp Glu Met Glu Asp  
 900 905

<210> 24  
 <211> 668  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 24

Met Asn Asp Leu Lys Phe Asp Pro Asn Val Lys Leu Ile Leu Ala Ser  
 1 5 10 15

Ala Arg Ser His Ala Met Ser Leu Ser His Gly Gln Val Thr Pro Leu  
 20 25 30

His Leu Gly Val Thr Leu Ile Ser Asp Leu Thr Ser Val Phe Tyr Arg  
 35 40 45

Ala Ile Thr Ser Ala Gly Asp Gly Asp Ile Ser Ala Gln Ser Val Val  
 50 55 60

Asn Val Ile Asn Gln Ser Leu Tyr Lys Leu Thr Lys Arg Asn Leu Gly  
 65 70 75 80

Asp Thr Lys Val Gly Val Ala Val Leu Val Ile Ser Leu Leu Glu Asp  
 85 90 95

Ser Gln Ile Ser Asp Val Leu Lys Glu Ala Gly Val Val Pro Glu Lys  
 100 105 110

Val Lys Ser Glu Val Glu Lys Leu Arg Gly Glu Val Ile Leu Arg Ala  
 115 120 125

Leu Lys Thr Tyr Gly Thr Asp Leu Val Glu Gln Ala Gly Lys Leu Asp  
 130 135 140

Pro Val Ile Gly Arg His Arg Glu Ile Arg Arg Val Ile Glu Val Leu  
 145 150 155 160

Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile Gly Glu Pro Gly Val

165	170	175
Gly Lys Thr Ala Val Val Glu Gly Leu Ala Gln Arg Ile Leu Lys Gly 180 185 190		
Asp Val Pro Ile Asn Leu Thr Gly Val Lys Leu Ile Ser Leu Glu Phe 195 200 205		
Gly Ala Met Val Ala Gly Thr Thr Leu Arg Gly Gln Phe Glu Glu Arg 210 215 220		
Leu Lys Ser Val Leu Lys Ala Val Glu Glu Ala Gln Gly Lys Val Val 225 230 235 240		
Leu Phe Ile Asp Glu Ile His Met Ala Leu Gly Ala Cys Lys Ala Ser 245 250 255		
Gly Ser Thr Asp Ala Ala Lys Leu Leu Lys Pro Met Leu Ala Arg Gly 260 265 270		
Gln Leu Arg Phe Ile Gly Ala Thr Thr Leu Glu Glu Tyr Arg Thr His 275 280 285		
Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe Gln Gln Val Phe Val 290 295 300		
Ala Glu Pro Ser Val Pro Asp Thr Ile Ser Ile Leu Arg Gly Leu Lys 305 310 315 320		
Glu Lys Tyr Glu Gly His His Gly Val Arg Ile Gln Asp Arg Ala Leu 325 330 335		
Val Leu Ser Ala Gln Leu Ser Glu Arg Tyr Ile Thr Gly Arg Arg Leu 340 345 350		
Pro Asp Lys Ala Ile Asp Leu Val Asp Glu Ser Cys Ala His Val Lys 355 360 365		
Ala Gln Leu Asp Ile Gln Pro Glu Glu Ile Asp Ser Leu Glu Arg Lys 370 375 380		
Val Met Gln Leu Glu Ile Glu Ile His Ala Leu Glu Lys Glu Lys Asp 385 390 395 400		
Asp Lys Ala Ser Glu Ala Arg Leu Ser Glu Val Arg Lys Glu Leu Asp 405 410 415		

Asp Leu Arg Asp Lys Leu Glu Pro Leu Thr Ile Lys Tyr Lys Lys Glu  
 420 425 430

Lys Lys Ile Ile Asn Glu Thr Arg Arg Leu Lys Gln Asn Arg Asp Asp  
 435 440 445

Leu Met Ile Ala Leu Gln Glu Ala Glu Arg Gln His Asp Val Pro Lys  
 450 455 460

Ala Ala Val Leu Lys Tyr Gly Ala Ile Gln Glu Val Glu Ser Ala Ile  
 465 470 475 480

Ala Lys Leu Glu Lys Ser Ala Lys Asp Asn Val Met Leu Thr Glu Thr  
 485 490 495

Val Gly Pro Glu Asn Ile Ala Glu Val Val Ser Arg Trp Thr Gly Ile  
 500 505 510

Pro Val Thr Arg Leu Asp Gln Asn Glu Lys Lys Arg Leu Ile Ser Leu  
 515 520 525

Ala Asp Lys Leu His Glu Arg Val Val Gly Gln Asp Glu Ala Val Lys  
 530 535 540

Ala Val Ala Ala Ala Ile Leu Arg Ser Arg Val Gly Leu Gly Arg Pro  
 545 550 555 560

Gln Gln Pro Ser Gly Ser Phe Leu Phe Leu Gly Pro Thr Gly Val Gly  
 565 570 575

Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Gln Leu Phe Asp Ser Glu  
 580 585 590

Asn Leu Leu Val Arg Leu Asp Met Ser Glu Tyr Asn Asp Lys Phe Ser  
 595 600 605

Val Asn Lys Leu Ile Gly Ala Pro Pro Gly Tyr Tyr Ile Gly His Glu  
 610 615 620

Glu Gly Gly Gln Leu Thr Glu Pro Val Arg Arg Arg Pro Tyr Cys Val  
 625 630 635 640

Val Leu Phe Asp Glu Val Glu Lys Thr His Val Thr Val Phe Asn Thr  
 645 650 655

Leu Leu Gln Val Leu Glu Asp Gly Arg Leu Thr Asp  
660 665

<210> 25  
<211> 867  
<212> PRT  
<213> Leishmania donovani

<400> 25

Met Thr Thr Gln Gln Pro Glu Trp Thr Gln Ala Ala Ser Asp Leu Met  
1 5 10 15

Ala Arg Thr Ala Ala Leu Ala Arg Lys Lys Ala Asn Gly Tyr Leu Asp  
20 25 30

Pro Val His Leu Ala Tyr Val Met Phe Glu Asp Glu Asn Ser Leu Ala  
35 40 45

Ser Arg Val Val Arg Lys Leu Gly Ala Ala Ser Val Lys Asp Gly Leu  
50 55 60

Glu Ala Arg Val Asp Ala Ile Pro Thr Gln Met Pro Ala Pro Thr Gln  
65 70 75 80

Pro Arg Pro Asn Ser Asp Met Met Arg Val Met Asn Thr Ala Glu Gln  
85 90 95

Glu Arg Val Ala Leu Gly Asp Thr Leu Met Ala Ala Asp His Phe Leu  
100 105 110

Leu Ala Leu His Glu Ser Lys Glu Val Gly Arg Ile Leu Asp Ala Ala  
115 120 125

Gly Ala Gly Lys Lys Ala Ile Arg Ala Thr Leu Leu Glu Met Arg Lys  
130 135 140

Gly Lys Lys Ile Asn Ser Asp Phe Gln Asp Asp Asn Tyr Glu Ser Leu  
145 150 155 160

Asn Lys Tyr Ala Val Asp Leu Cys Lys Gln Ala Glu Asp Gly Lys Leu  
165 170 175

Asp Pro Val Ile Gly Arg Ala Asp Glu Ile Leu Arg Thr Ile Arg Val  
180 185 190

Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile Gly Glu Pro Gly

195	200	205
Val Gly Lys Thr Ala Ile 210	Val Glu Gly Ile Ala 215	Gln Gln Val Val Arg 220
Gly Asp Val Pro Asp Thr Leu Ser Gly Ile Arg Ile Phe Ser Leu Asp 225	230	235 240
Met Gly Ala Leu Ile Ala Gly Ala Lys Tyr Arg Gly Glu Phe Glu Glu 245	250	255
Arg Leu Lys Ala Val Leu Asn Glu Val Lys Glu Ser Asp Asn Lys Ile 260	265	270
Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu Gly Ala Gly Lys Ser 275	280	285
Asp Gly Ala Met Asp Ala Ala Asn Leu Leu Lys Pro Leu Leu Ala Arg 290	295	300
Gly Glu Leu Arg Thr Ile Gly Ala Thr Thr Leu Glu Glu Tyr Arg Gln 305	310	315 320
Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe Met Pro Val Gln 325	330	335
Val Asn Glu Pro Ser Val Glu Glu Cys Thr Ser Ile Leu Arg Gly Leu 340	345	350
Lys Asp Arg Tyr Glu Gln His His Gly Val Gln Ile Thr Asp Lys Ala 355	360	365
Val Val Val Ala Ala Gln Leu Ala Gly Arg Tyr Ile Thr Asn Arg Phe 370	375	380
Leu Pro Asp Lys Ala Ile Asp Leu Ile Asp Glu Ala Cys Ala Asn Val 385	390	395 400
Arg Val Thr Leu Ser Ser Arg Pro Ala Glu Ile Asp Ala Leu Glu Arg 405	410	415
Lys Lys Arg Gln Leu Glu Ile Glu Glu Lys Ala Leu Gln Arg Asp Lys 420	425	430
Asp Ala Ser Ala Lys Glu Arg Leu Lys Ala Val Lys Ala Glu Ile Gln 435	440	445



Lys Val Glu Glu Lys Leu Gly Pro Leu Leu Ala Lys Tyr Glu Gln Glu  
450 455 460

Arg Gly Arg Ile Asp Glu Leu Gln Ala Thr Gln Ala Lys Leu Asp Glu  
465 470 475 480

Lys Lys Val Lys Leu Glu Arg Ala Glu Arg Met Arg Asp Met Glu Thr  
485 490 495

Ala Ala Asp Leu Lys Tyr Asn Val Ile Pro Ile Leu Gln Asp Arg Ile  
500 505 510

Arg Ser Leu Lys Glu Glu Ile Glu Lys Gln Lys Ala Thr Met Leu His  
515 520 525

Gly Thr Val Thr Glu Thr Asp Ile Ala Thr Val Val Ser Arg Trp Thr  
530 535 540

Asn Ile Pro Val Thr Lys Leu Ser Gln Thr Glu Arg Glu Arg Leu Leu  
545 550 555 560

His Leu Ala Asp Gln Leu His Leu Arg Val Lys Gly Gln Asp Glu Ala  
565 570 575

Val Ser Arg Val Ala Glu Ala Ile Leu Arg Ser Arg Ala Gly Leu Ala  
580 585 590

Arg Ser Asp Arg Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro Thr Gly  
595 600 605

Val Gly Lys Thr Glu Leu Ser Lys Ala Val Ala Ser Lys Leu Phe Asp  
610 615 620

Asp Ala Lys Tyr Met Val Arg Leu Asp Met Ser Glu Tyr Met Glu Gln  
625 630 635 640

His Ser Val Ala Arg Leu Ile Gly Ala Pro Pro Gly Tyr Val Gly His  
645 650 655

Glu Glu Gly Gly Gln Leu Thr Glu Pro Val Arg Arg Arg Pro Tyr Thr  
660 665 670

Val Val Leu Leu Asp Glu Val Glu Lys Ala His Pro Asn Val Phe Asn  
675 680 685

Val Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Ser His Gly  
690 695 700

Arg Thr Val Asn Phe Cys Tyr Thr Ile Ile Ile Met Thr Ser Asn Leu  
705 710 715 720

Gly Ala Gln Tyr Leu Gln Asn Met Asp Thr Ser Pro Lys Ala Tyr Glu  
725 730 735

Val Ala Gln Thr Gln Val Met Gly Glu Val Arg Lys Phe Phe Arg Pro  
740 745 750

Glu Phe Ile Asn Arg Leu Asp Asp Ile Ile Leu Phe Arg Ser Leu Gly  
755 760 765

Leu Lys Glu Met Thr Gly Ile Ile Asp Leu Ile Thr Glu Glu Leu Tyr  
770 775 780

Gly Arg Leu Lys Asp Gln Ser Ile Arg Val Ser Leu Thr Glu Glu Ala  
785 790 795 800

Lys Asn Tyr Val Leu Glu Ser Ala Phe Asp Ala Asp Met Gly Ala Arg  
805 810 815

Pro Leu Arg Arg Trp Val Glu Lys Asn Ile Thr Thr Glu Leu Ser Arg  
820 825 830

Met Ile Ile Ser Gln Glu Leu Ser Pro Asn Ser Thr Val Lys Val Thr  
835 840 845

Leu Ser Ser Asn His Lys Lys Leu Ser Phe Ser Val Lys Arg Thr Ala  
850 855 860

Ala Gln Thr  
865

<210> 26  
<211> 867  
<212> PRT  
<213> Leishmania major

<400> 26

Met Thr Thr Gln Gln Pro Glu Trp Lys Gln Ala Ala Ser Asp Leu Met  
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Ala Arg Met Ala Ala Leu Ala Arg Lys Lys Ala Asn Gly Tyr Leu Asp

20	25	30
Pro Val His Leu Ala Tyr Val Met Phe Glu Asp Glu Asn Ser Leu Ala		
35	40	45
Ser Arg Ala Val Arg Lys Leu Gly Ala Ala Ser Val Lys Asp Gly Leu		
50	55	60
Glu Ala Arg Val Asp Ala Ile Pro Asn Gln Met Pro Ala Pro Thr Gln		
65	70	75
Pro Arg Pro Asn Ser Asp Met Met Arg Val Met Asn Thr Ala Glu Gln		
85	90	95
Glu Arg Ala Ala Leu Gly Asp Thr Leu Met Ala Ala Asp His Phe Leu		
100	105	110
Leu Ala Leu His Glu Ser Lys Glu Val Gly Arg Ile Leu Asp Ala Ala		
115	120	125
Gly Ala Gly Lys Lys Ala Ile Arg Ala Thr Leu Leu Glu Met Arg Lys		
130	135	140
Gly Lys Lys Ile Thr Ser Asp Phe Gln Asp Asp Asn Tyr Glu Ser Leu		
145	150	155
Asn Lys Tyr Ala Val Asp Leu Cys Lys Gln Ala Glu Asp Gly Lys Leu		
165	170	175
Asp Pro Val Ile Gly Arg Ala Asp Glu Ile Leu Arg Thr Ile Arg Val		
180	185	190
Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile Gly Glu Pro Gly		
195	200	205
Val Gly Lys Thr Ala Ile Val Glu Gly Ile Ala Gln Gln Val Val Arg		
210	215	220
Gly Asp Val Pro Asp Thr Leu Ser Gly Ile Arg Ile Phe Ser Leu Asp		
225	230	235
Met Gly Ala Leu Ile Ala Gly Ala Lys Tyr Arg Gly Glu Phe Glu Glu		
245	250	255
Arg Leu Lys Ala Val Leu Asn Glu Val Lys Glu Ser Asp Asn Lys Ile		
260	265	270

Ile Leu Phe Ile Val Glu Ile His Leu Val Leu Gly Ala Gly Lys Ser  
 275 280 285

Asp Gly Ala Met Asp Ala Ala Asn Leu Leu Lys Pro Leu Leu Ala Arg  
 290 295 300

Gly Asp Val Arg Thr Ile Gly Ala Thr Thr Leu Glu Glu Tyr Arg Gln  
 305 310 315 320

Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe Met Pro Val Gln  
 325 330 335

Val His Glu Pro Ser Val Glu Glu Cys Thr Ser Ile Leu Arg Gly Leu  
 340 345 350

Lys Asp Arg Tyr Glu Gln His His Gly Val Gln Ile Thr Asp Lys Ala  
 355 360 365

Val Val Val Ala Ala Gln Leu Ala Gly Arg Tyr Ile Thr Asn Arg Phe  
 370 375 380

Leu Pro Asp Lys Ala Ile Asp Leu Ile Asp Glu Ala Cys Ala Asn Val  
 385 390 395 400

Arg Val Thr Leu Ser Ser Arg Pro Ala Glu Ile Asp Ala Leu Glu Arg  
 405 410 415

Lys Lys Arg Gln Leu Glu Ile Glu Glu Arg Ala Leu Gln Arg Asp Lys  
 420 425 430

Asp Ala Ser Ala Lys Glu Arg Leu Lys Ala Val Lys Ala Glu Ile Gln  
 435 440 445

Lys Val Glu Glu Lys Leu Gly Pro Leu Leu Ala Lys Tyr Glu Gln Glu  
 450 455 460

Arg Gly Arg Ile Asp Glu Leu Gln Ala Thr Gln Ala Lys Leu Asp Glu  
 465 470 475 480

Lys Lys Val Lys Leu Glu Arg Ala Glu Arg Met Arg Asp Met Glu Thr  
 485 490 495

Ala Ala Asp Leu Lys Tyr Arg Val Ile Pro Ile Leu Gln Asp Arg Ile  
 500 505 510

Arg Ser Leu Lys Glu Ala Ile Glu Lys Gln Lys Ala Thr Met Leu Gln  
515 520 525

Gly Thr Val Thr Gly Thr Asp Ile Ala Thr Val Val Ser Arg Trp Thr  
530 535 540

Asn Ile Pro Val Thr Lys Leu Ser Gln Thr Glu Arg Glu Arg Leu Leu  
545 550 555 560

His Leu Ala Asp Gln Leu His Leu Arg Val Lys Gly Gln Asp Glu Ala  
565 570 575

Val Ser Arg Val Ala Glu Ala Ile Leu Arg Ser Arg Ala Gly Leu Ala  
580 585 590

Arg Ser Asp Arg Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro Thr Gly  
595 600 605

Val Gly Lys Thr Glu Leu Ser Lys Ala Val Ala Ser Glu Leu Phe Asp  
610 615 620

Asp Ala Lys Tyr Met Val Arg Leu Asp Met Ser Glu Tyr Met Glu Gln  
625 630 635 640

His Ser Val Ala Arg Leu Ile Gly Thr Pro Pro Gly Tyr Val Gly His  
645 650 655

Glu Glu Gly Gly Gln Leu Thr Glu Pro Val Arg Arg Arg Pro Tyr Thr  
660 665 670

Val Val Leu Leu Asp Glu Val Glu Lys Ala His Pro Asn Val Phe Asn  
675 680 685

Val Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Ser His Gly  
690 695 700

Arg Thr Val Asp Phe Cys Asn Thr Ile Ile Ile Met Thr Ser Asn Leu  
705 710 715 720

Gly Ala Gln Tyr Leu Gln Asn Met Asp Thr Ser Pro Lys Pro Tyr Glu  
725 730 735

Val Ala Gln Ala Gln Val Met Gly Glu Val Arg Lys Phe Phe Arg Pro  
740 745 750

Glu Phe Ile Asn Arg Leu Asp Asp Ile Ile Leu Phe Arg Ser Leu Gly  
 755 760 765

Leu Lys Glu Met Thr Gly Ile Ile Asp Leu Ile Thr Glu Glu Leu Asn  
 770 775 780

Gly Arg Leu Lys Asp Gln Ser Ile Arg Val Ser Leu Thr Glu Glu Ala  
 785 790 795 800

Lys Gln Tyr Val Leu Glu Ser Ala Phe Asp Ala Asp Met Gly Ala Arg  
 805 810 815

Pro Leu Arg Arg Trp Val Glu Lys Asn Ile Thr Thr Glu Leu Ser Arg  
 820 825 830

Met Ile Ile Ser Gln Glu Leu Ser Pro Asn Ser Thr Val Lys Val Thr  
 835 840 845

Leu Ser Ser Asn His Lys Lys Leu Ser Phe Ser Val Lys Arg Thr Ala  
 850 855 860

Ala Gln Thr  
 865

<210> 27  
 <211> 912  
 <212> PRT  
 <213> Zea mays

<400> 27

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Ala His Glu Ile Ala Val Glu Ala Gly His Ala Gln Leu Thr Pro Leu  
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His Leu Ala Ala Val Leu Ala Ala Asp Lys Gly Gly Ile Leu Arg Gln  
 35 40 45

Ala Ile Thr Gly Ala Ser Gly Gly Asp Gly Ala Ala Gly Asp Ser Phe  
 50 55 60

Glu Arg Val Leu Asn Asn Ser Leu Lys Lys Leu Pro Ser Gln Ser Pro  
 65 70 75 80

Pro Pro Asp Ser Val Pro Ala Ser Thr Ala Leu Ile Lys Val Ile Arg  
 85 90 95

Arg Ala Gln Ser Ala Gln Lys Lys Arg Gly Asp Ser His Leu Ala Val  
 100 105 110

Asp Gln Leu Leu Leu Gly Leu Leu Glu Asp Ser Gln Ile Ser Asp Cys  
 115 120 125

Leu Lys Glu Ala Gly Val Ser Ala Ala Arg Val Arg Ala Glu Leu Glu  
 130 135 140

Lys Leu Arg Gly Gly Glu Gly Arg Arg Val Glu Ser Ala Ser Gly Asp  
 145 150 155 160

Thr Asn Phe Gln Ala Leu Lys Thr Tyr Gly Arg Asp Leu Val Glu Gln  
 165 170 175

Ala Gly Lys Leu Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg  
 180 185 190

Val Val Arg Ile Leu Ser Arg Arg Thr Lys Asn Asn Pro Val Leu Ile  
 195 200 205

Gly Glu Pro Gly Val Gly Lys Thr Ala Val Val Glu Gly Leu Ala Gln  
 210 215 220

Arg Ile Val Arg Gly Asp Val Pro Ser Asn Leu Leu Asp Val Arg Leu  
 225 230 235 240

Ile Ala Leu Asp Met Gly Ala Leu Val Ala Gly Ala Lys Tyr Arg Gly  
 245 250 255

Glu Phe Glu Glu Arg Leu Lys Ala Val Leu Lys Glu Val Glu Glu Ala  
 260 265 270

Glu Gly Lys Val Ile Leu Phe Ile Asp Glu Ile His Leu Val Leu Gly  
 275 280 285

Ala Gly Arg Thr Glu Gly Ser Met Asp Ala Ala Asn Leu Phe Lys Pro  
 290 295 300

Met Leu Ala Arg Gly Gln Leu Arg Cys Ile Gly Ala Thr Thr Leu Glu  
 305 310 315 320

Glu Tyr Arg Lys Tyr Val Glu Lys Asp Ala Ala Phe Glu Arg Arg Phe  
 325 330 335

Gln Gln Val Phe Val Ala Glu Pro Ser Val Pro Asp Thr Val Ser Ile  
 340 345 350

Leu Arg Gly Leu Lys Glu Lys Tyr Glu Gly His His Gly Val Arg Ile  
 355 360 365

Gln Asp Arg Ala Leu Val Val Ala Ala Gln Leu Ser Ala Arg Tyr Ile  
 370 375 380

Met Gly Arg His Leu Pro Asp Lys Ala Ile Asp Leu Val Asp Glu Ala  
 385 390 395 400

Cys Ala Asn Val Arg Val Gln Leu Asp Ser Gln Pro Glu Glu Ile Asp  
 405 410 415

Asn Leu Glu Arg Lys Arg Ile Gln Leu Glu Val Glu Leu His Ala Leu  
 420 425 430

Glu Lys Glu Lys Asp Lys Ala Ser Lys Ala Arg Leu Ile Glu Val Arg  
 435 440 445

Lys Glu Leu Asp Asp Leu Arg Asp Lys Leu Gln Pro Leu Thr Met Lys  
 450 455 460

Tyr Arg Lys Glu Lys Glu Arg Ile Asp Glu Ile Arg Lys Leu Lys Gln  
 465 470 475 480

Arg Arg Glu Glu Leu Gln Phe Thr Leu Gln Glu Ala Glu Arg Arg Met  
 485 490 495

Asp Leu Ala Arg Val Ala Asp Leu Lys Tyr Gly Ala Leu Gln Glu Ile  
 500 505 510

Asp Ala Ala Ile Ser Lys Leu Glu Ser Glu Thr Gly Glu Asn Leu Met  
 515 520 525

Leu Thr Glu Thr Val Gly Pro Glu Gln Ile Ala Glu Val Val Ser Arg  
 530 535 540

Trp Thr Gly Ile Pro Val Thr Arg Leu Gly Gln Asn Asp Lys Glu Arg  
 545 550 555 560

Leu Val Gly Leu Ala Asp Arg Leu His Gln Arg Val Val Gly Gln Thr  
 565 570 575



Glu Ala Val Ser Ala Val Ala Glu Ala Val Leu Arg Ser Arg Ala Gly  
580 585 590

Leu Gly Arg Pro Gln Gln Pro Thr Gly Ser Phe Leu Phe Leu Gly Pro  
595 600 605

Thr Gly Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Gln Leu  
610 615 620

Phe Asp Asp Glu Asn Leu Leu Val Arg Ile Asp Met Ser Glu Tyr Met  
625 630 635 640

Glu Gln His Ser Val Ala Arg Leu Ile Gly Ala Pro Pro Gly Tyr Val  
645 650 655

Gly His Glu Glu Gly Gly Gln Leu Thr Glu Gln Val Arg Arg Arg Pro  
660 665 670

Tyr Ser Val Ile Leu Phe Asp Glu Val Glu Lys Ala His Val Ala Val  
675 680 685

Phe Asn Thr Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Gly  
690 695 700

Gln Gly Arg Thr Val Asp Phe Arg Asn Thr Val Ile Ile Met Thr Ser  
705 710 715 720

Asn Leu Gly Ala Glu His Leu Leu Ala Gly Met Val Gly Lys Asn Ser  
725 730 735

Met Lys Val Ala Arg Asp Leu Val Met Gln Glu Val Arg Arg His Phe  
740 745 750

Arg Pro Glu Leu Leu Asn Arg Leu Asp Glu Ile Val Ile Phe Asp Pro  
755 760 765

Leu Ser His Glu Gln Leu Arg Lys Val Ala Arg Leu Gln Met Lys Asp  
770 775 780

Val Ala Val Arg Leu Ala Glu Arg Gly Ile Ala Leu Ala Val Thr Asp  
785 790 795 800

Ala Ala Leu Asp Ile Ile Leu Ser Leu Ser Tyr Asp Pro Val Tyr Gly  
805 810 815

Ala Arg Pro Ile Arg Arg Trp Ile Glu Lys Arg Val Val Thr Gln Leu

820	825	830
Ser Lys Met Leu Ile Gln Glu Glu Ile Asp Glu Asn Cys Thr Val Tyr		
835	840	845
Ile Asp Ala Ala Pro Gly Lys Asp Glu Leu Val Tyr Arg Val Asp Arg		
850	855	860
Ser Gly Gly Leu Val Asn Ala Glu Thr Gly Met Lys Ser Asp Ile Leu		
865	870	875 880
Ile Gln Val Pro Asn Ser Ser Thr Arg Ser Asp Ala Ala Gln Ala Val		
	885	890 895
Lys Lys Met Arg Ile Met Glu Glu Asp Glu Asp Gly Met Asp Glu Glu		
	900	905 910
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Pro Asp Thr Val Ser Ile Leu Arg Gly Leu Lys Glu Lys Tyr Glu Gly		
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His His Gly Val Arg Ile Gln Asp Arg Ala Leu Val Val Ala Ala Gln		
	35	40 45
Leu Ser Ala Arg Tyr Ile Met Gly Arg His Leu Pro Asp Lys Ala Ile		
	50	55 60
Asp Leu Val Asp Glu Ala Cys Ala Asn Val Arg Val Gln Leu Asp Ser		
65	70	75 80
Gln Pro Glu Glu Ile Asp Asn Leu Glu Arg Lys Arg Ile Gln Leu Glu		
	85	90 95
Val Glu Leu His Ala Leu Glu Lys Glu Lys Asp Lys Ala Ser Lys Ala		
	100	105 110
Arg Leu Ile Glu Val Arg Lys Glu Leu Asp Asp Leu Arg Asp Lys Leu		
	115	120 125

Gln Pro Leu Thr Met Lys Tyr Arg Lys Glu Lys Glu Arg Ile Asp Glu  
 130 135 140

Ile Arg Lys Leu Lys Gln Arg Arg Glu Glu Leu Gln Phe Thr Leu Gln  
 145 150 155 160

Glu Ala Glu Arg Arg Met Asp Leu Ala Arg Val Ala Asp Leu Lys Tyr  
 165 170 175

Gly Ala Leu Gln Glu Ile Asp Ala Ala Ile Ser Lys Leu Glu Ser Glu  
 180 185 190

Thr Gly Glu Asn Leu Met Leu Thr Glu Thr Val Gly Pro Glu Gln Ile  
 195 200 205

Ala Glu Val Val Ser Arg Trp Thr Gly Ile Pro Val Thr Arg Leu Gly  
 210 215 220

Gln Asn Asp Lys Glu Arg Leu Val Gly Leu Ala Asp Arg Leu His Gln  
 225 230 235 240

Arg Val Val Gly Gln Thr Glu Ala Val Ser Ala Val Ala Glu Ala Val  
 245 250 255

Leu Arg Ser Arg Ala Gly Leu Gly Arg Pro Gln Gln Pro Thr Gly Ser  
 260 265 270

Phe Leu Phe Leu Gly Pro Thr Gly Val Gly Lys Thr Glu Leu Ala Lys  
 275 280 285

Ala Leu Ala Glu Gln Leu Phe Asp Asp Glu Asn Leu Leu Val Arg Ile  
 290 295 300

Asp Met Ser Glu Tyr Met Glu Gln His Ser Val Ala Arg Leu Ile Gly  
 305 310 315 320

Ala Pro Pro Gly Tyr Val Gly His Glu Glu Gly Gly Gln Leu Thr Glu  
 325 330 335

Gln Val Arg Arg Arg Pro Tyr Ser Val Ile Leu Phe Asp Glu Val Glu  
 340 345 350

Lys Ala His Val Ala Val Phe Asn Thr Leu Leu Gln Val Leu Asp Asp  
 355 360 365

Gly Arg Leu Thr Asp Gly Gln Gly Arg Thr Val Asp Phe Arg Asn Thr  
 370 375 380

Val Ile Ile Met Thr Ser Asn Leu Gly Ala Glu His Leu Leu Ala Gly  
 385 390 395 400

Met Val Gly Lys Asn Ser Met Lys Val Ala Arg Asp Leu Val Met Gln  
 405 410 415

Glu Val Arg Arg His Phe Arg Pro Glu Leu Leu Asn Arg Leu Asp Glu  
 420 425 430

Ile Val Ile Phe Asp Pro Leu Ser His Glu Gln Leu Arg Lys Val Ala  
 435 440 445

Arg Leu Gln Met Lys Asp Val Ala Val Arg Leu Ala Glu Arg Gly Ile  
 450 455 460

Ala Leu Ala Val Thr Asp Ala Ala Leu Asp Ile Ile Leu Ser Leu Ser  
 465 470 475 480

Tyr Asp Pro Val Tyr Gly Ala Arg Pro Ile Arg Arg Trp Ile Glu Lys  
 485 490 495

Arg Val Val Thr Gln Leu Ser Lys Met Leu Ile Gln Glu Glu Ile Asp  
 500 505 510

Glu Asn Cys Thr Val Tyr Ile Asp Ala Ala Pro Gly Lys Asp Glu Leu  
 515 520 525

Val Tyr Arg Val Asp Arg Ser Gly Gly Leu Val Asn Ala Glu Thr Gly  
 530 535 540

Met Lys Ser Asp Ile Leu Ile Gln Val Pro Thr Ser Ser Thr Arg Ser  
 545 550 555 560

Asp Ala Ala Gln Ala Val Lys Lys Met Arg Ile Met Glu Glu Asp Glu  
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Asp Gly Met Asp Glu Glu  
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 <213> Phaseolus lunatus

<400> 29

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Val Thr Ala Ser Arg Thr Ser Arg Ser Arg Ser Ala Arg Arg Leu Phe  
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Ser Ala Ile Thr Arg Ala Ser Glu Thr Ser Pro Asn Val Leu Ser Arg  
35 40 45

Ser Gln Val Val Asp Ala Leu Ala Ala Asn Asn Val Ala Ser Ala Lys  
50 55 60

Phe Leu Ser Leu Ser Phe Thr Arg Ser Phe His Ala Thr Asn Pro Ser  
65 70 75 80

Leu Arg Ser Ala Ala Ser Ser Gln Val Ala Gln Thr Glu Phe Thr Asp  
85 90 95

Met Ala Trp Glu Gly Ile Leu Gly Ala Val Asp Ala Ala Arg Ile Ser  
100 105 110

Lys Gln Gln Ile Val Glu Ser Glu His Leu Met Lys Ala Leu Leu Glu  
115 120 125

Gln Lys Asp Gly Leu Ala Arg Arg Val Phe Thr Lys Thr Gly Leu Asp  
130 135 140

Asn Thr Ser Val Leu Gln Ala Thr Asp Asp Phe Ile Pro Lys Gln Pro  
145 150 155 160

Lys Val Thr Gly Asp Thr Thr Gly Pro Val Ile Gly Ser His Leu Ser  
165 170 175

Ser Leu Leu Asp Asn Ala Arg Lys Tyr Lys Lys Glu Met Gly Asp Glu  
180 185 190

Tyr Val Ser Val Glu His Leu Leu Leu Ala Phe His Ser Asp Lys Thr  
195 200 205

Phe Gly Gln Gln Leu Phe Lys Asn Leu Gln Leu Ser Gly Ile Thr Leu  
210 215 220

Lys Asp Ala Val Gln Ala Val Arg Gly Ser Gln Arg Val Thr Asp Gln  
225 230 235 240



Leu Val Asp Glu Ala Ala Ala Lys Leu Lys Met Glu Ile Thr Ser Lys  
 485 490 495

Pro Thr Glu Leu Asp Glu Ile Asp Arg Ala Ile Leu Lys Leu Glu Met  
 500 505 510

Glu Lys Leu Ser Leu Lys Asn Asp Thr Asp Lys Ala Ser Lys Glu Arg  
 515 520 525

Leu Ser Lys Leu Glu Asn Asp Leu Ser Leu Leu Lys Gln Lys Gln Lys  
 530 535 540

Glu Leu Ala Glu Gln Trp Asp Asn Glu Lys Val Phe Met Thr Arg Ile  
 545 550 555 560

Arg Ser Ile Lys Glu Glu Ile Asp Arg Val Asn Leu Glu Met Glu Ala  
 565 570 575

Ala Glu Arg Asp Tyr Asp Leu Asn Arg Ala Ala Glu Leu Lys Tyr Gly  
 580 585 590

Thr Leu Met Ser Leu Gln Arg Gln Leu Glu Glu Ala Glu Lys Asn Leu  
 595 600 605

Thr Asp Phe Arg Lys Ser Gly Lys Ser Leu Leu Arg Arg Arg Gly His  
 610 615 620

Tyr Leu Asp Ile Thr Glu Ile Val Ser Lys Trp Thr Gly Ile Pro Leu  
 625 630 635 640

Ser Asn Leu Gln Gln Thr Glu Arg Glu Lys Leu Val Leu Leu Glu Gln  
 645 650 655

Val Leu His Asn Arg Val Val Gly Gln Asp Ile Ala Val Lys Ser Val  
 660 665 670

Ala Asp Ala Ile Arg Arg Ser Arg Ala Gly Leu Ser Asp Pro Asn Arg  
 675 680 685

Pro Ile Ala Ser Phe Met Phe Met Gly Pro Thr Gly Val Gly Lys Thr  
 690 695 700

Glu Leu Ala Lys Ala Leu Ala Gly Tyr Leu Phe Asn Thr Glu Asn Ala  
 705 710 715 720

Leu Val Arg Ile Asp Met Ser Glu Tyr Met Glu Lys His Ala Val Ser

725	730	735
Arg Leu Val Gly Ala Pro Pro Gly Tyr Ile Gly Tyr Glu Glu Gly Gly		
740	745	750
Gln Leu Thr Glu Val Val Arg Arg Arg Pro Tyr Ser Val Val Leu Phe		
755	760	765
Asp Glu Ile Glu Lys Ala His His Asp Val Phe Asn Ile Leu Leu Gln		
770	775	780
Leu Leu Asp Asp Gly Arg Ile Thr Asp Ser Gln Gly Arg Thr Val Ser		
785	790	795
Phe Thr Asn Cys Val Val Ile Met Thr Ser Asn Ile Gly Ser His Phe		
805	810	815
Ile Leu Glu Thr Leu Arg Ser Thr Gln Asp Asp Lys Thr Gly Val Tyr		
820	825	830
Asp Gln Met Lys Arg Gln Val Val Glu Leu Ala Arg Gln Thr Phe Arg		
835	840	845
Pro Glu Phe Met Asn Arg Ile Asp Glu Tyr Ile Val Phe Gln Pro Leu		
850	855	860
Asp Ser Glu Gln Ile Ser Lys Ile Val Glu Leu Gln Met Glu Arg Val		
865	870	875
Lys Asn Arg Leu Lys Gln Lys Lys Ile Asp Leu His Phe Thr Glu Glu		
885	890	895
Ala Val Lys His Leu Gly Val Leu Gly Phe Asp Pro Asn Phe Gly Ala		
900	905	910
Arg Pro Val Lys Arg Val Ile Gln Gln Leu Val Glu Asn Glu Ile Ala		
915	920	925
Met Gly Val Leu Arg Gly Asp Phe Lys Glu Glu Asp Ser Ile Ile Val		
930	935	940
Asp Ala Asp Val Ala Pro Ser Gly Lys Glu Arg Ser Leu Asn Arg Leu		
945	950	955
Leu Ile Lys Lys Leu Asp Ser Pro Val Ala Asp Ala Met Val Val Asn		
965	970	975



His

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tctagtctta ttaaggatcat tcgtcgtgct caagctgctc agaagtcacg aggtgatact 480  
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gaaatgatcg	aggattaaag	tcttgacctc	caacgtgtga	gttcttttga	ggtgttgtga	2940
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gtgtggaact	gtaaaaaagt	ctactttatt	atgttttcgt	atatgtaaat	cattttacat	3060
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